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COMPUTERWORLD

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NEWS IN BRIEF

Most DP Users Spared In N.Y. Power Outages

NEW YORK – Recent power failures have continued to spare most computer users, although there is no apparent reason.

The business section of Manhattan has not been hit by repeated incidences of feeder-cable failures this year. Previous brownouts and blackouts have been deliberately caused by Consolidated Edison, to prevent more widespread failures stemming from power-station inadequacies

In the New York failures at least three bank branches suffered shutdowns.

The bank branches use computer terminals to communicate with CPUs outside the affected area and, while the terminals could not be operated, the banks were closed anyway because of the lack of lights, air conditioning, automatic doors, elevators or other electrical apparatus.

Lawrence J. Maher, a vice-president at the Home Federal Savings Bank in Howard Beach, personally kept his branch open and completed emergency transactions by hand; computer terminal operators keyed-in the data the following day for transmission to a service bureau's computer in New Jersey.

Mail-Order Cigarette Tax Catches Up With City Folk

NEW YORK – City and state tobacco taxes are being collected by mail, several years after the cigarettes had been purchased by mail order from a North Carolina firm.

The firm, a court has ruled, had been violating a federal tax law against mailing cigarettes, and a computer printout of all its customers was given to New York State officials.

A campaign is under way to collect the back taxes, and local officials estimated that up to $1 million might be collected.

Citizens in many cases are receiving several tax bills, since the printout listed each two-carton order separately. The state is sending out a bill to each recipient and, upon completion of the campaign, will send New York City its portion.

On the Inside This Week

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Court OKs IBM Product Unveiling

By E. Drake Lundell Jr.
Of the CW Staff

OMAHA, Neb. — In a week of confusing legal activity, one court last week barred IBM from making a new product announcement today (Aug. 2), but was later overruled on IBM appeal.

IBM then said it would announce two new models in the 370 series — the 158 and 168 — with virtual storage. In addition, it said today's announcement would include four new programming systems, one of which will be available immediately.

Judge Philip Neville had issued a temporary restraining order to allow him time to hold hearings Sept. 1 on a Telex request that he issue a preliminary injunction barring the announcement.

The decision was reversed Thursday by the Eighth Circuit Court of Appeals here on the grounds that it would have been in effect for more than 20 days, the maximum allowed under federal law.

Telex said it would ask Judge Neville to reissue the temporary restraining order and to set an earlier date for hearings on the preliminary injunction. Judge Neville was expected to rule on the Telex motion July 31.

While IBM would release no details on the new systems to be unveiled today, it said that the new machines incorporate advanced semiconductor technology with main memory components eight times denser than any previously announced by IBM.

(CW Photo by R. Frank)

Kids Find Time to Share

David Hoekstra, left, and Chris Hoeh, right, watch Bart Hoekstra as the TTY in the public Teletype room at Kiewit Center prints out an answer to the game they are playing on the Dartmouth time-sharing system. The youngsters are summer users of the Dartmouth system. Story on Page 5.

Financial Record Privacy Goal of Bank Amendment

By Edward J. Bride
Of the CW Staff

WASHINGTON, D.C. – There is no federal law requiring banks and other financial institutions to protect the privacy of their customers, and Sen. John V. Tunney (D-Calif.) has introduced a bill to change that.

His bill would require banks, credit card companies and other "financial institutions" to treat all customer accounts as confidential; a subpoena, court order or the customer's permission would be required before any information could be disclosed.

Tunney's bill is an amendment to Public Law 91-508, the so-called Bank Secrecy Act of 1970. The law, which went into effect July 1, requires banks to microfilm all records, including every financial transaction, and hold them for five years.

Additionally, the government must be notified of currency (cash) transactions exceeding $10,000, if these transactions are deemed "unusual" by the bank.

The law also requires customer information to be filed by Social Security number, to facilitate computer retrieval of these records should the government need them for tax or criminal investigations.

Actually, the term used in the law is "taxpayer identification number," (TID) but this is the SS number for individuals [CW, July 26].

Notification to the Internal Revenue Service, for example, a branch of the Treasury Department, would be by TID number.

Guaranteed Security

Tunney said his bill, called the Citizens Privacy Protection Act of 1972, would "guarantee that a person's records in a financial institution are as secure from government surveillance as they would be in the customer's own home."

Some local sources have expressed concern over the original Bank Secrecy Act, especially because this is an election year, and political (and religious) contributions would be among those transactions kept for government inspection, unless these were made with cash.

The currency-reporting provision is being challenged in courts here and in California by the American Civil Liberties Union. The federal court in California has enjoined all banks from complying with this provision, pending completion of

(Continued on Page 2)

DP Operator Arrested

Sabotage Was the Problem

By a CW Staff Writer

DENVER – A computer operator here has been arrested and charged with short-circuiting a computer system at least 56 times in the past two years.

Before the arrest, however, the user and the computer manufacturer (Burroughs) spent an estimated $500,000 trying to track down what was assumed to be a problem in the machine or the power lines coming into the company.

National Farmers Union Corp. here, which handles around $50 million in premiums annually for Farmers Union insurance companies, said that the average downtime at its DP center was eight hours in each of the 56 instances, with the longest lasting over 24 hours during the period from Sept. 9, 1970.

More Security Needed

This new case, and other isolated incidents where programmers and other DP personnel have tampered with the computers, illustrates the need for careful security precautions around DP centers, a user indicated last week.

According to police, the operator's technique was to jam a metallic object between open circuits of the B3500's internal disk file, long enough to cause the machine to short-circuit.

Without the disk file, the B3500 cannot operate, since the system's Master Control Program and other system software are resident on the files.

"Almost any computer is vulnerable to this type of sabotage," a source said. "There are open circuits on almost every computer that someone could get at by opening the 'skin' on the machines," he said.

At first, experts from around the U.S. were flown to Denver to try to find out why the computer was continually short-circuiting, another source said. Then the firm felt that the short circuits were caused by power fluctuations since it was located in a new area of the town.

But the problem was not corrected, even though National Farmers installed all new wiring and added much ancilliary equipment to deal with the problems.

Burroughs also installed a backup disk file, so that the downtime was kept to a minimum as the failures continued.

The costs in new equipment installed by both the user and the manufacturer, as well as time lost by the user, amounted to $500,000, the user estimated.

It was not until a few months ago that

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Financial Record Privacy Goal of Bank Amendment

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hearings.

The amount of the minimum transaction to be reported has been increased from a formerly implemented $2,500 to a proposed $5,000, and finally to $10,000.

Even so, the ACLU's cases charge that reporting these cash transactions would violate three constitutional amendments:

- The First – freedom of speech and assembly.
- The Fourth – freedom against unreasonable searches and seizures.
- The Fourteenth – equal protection under the law.

A government memorandum issued before the act was to become effective earlier this year said the secretary of the treasury had determined that the reports and records "will be very useful in criminal, tax or regulatory investigations or proceedings.

"Copies of these reports and any records being maintained," the memo continued, "are to be made readily available for review by a properly identified representative of a government agency."

The first item of the memorandum is an instruction to destroy it "after interested persons have read and instructions have been followed."

While the government said banks "normally" refuse to divulge customer information without either a subpoena, court order or the customer's permission, there is no federal law "requiring" this protection, an aide to Tunney emphasized.

Treasury Department officials admitted there had been some laxity in protecting individual's records, and Senate sources expressed concern that the laxity would increase under the reporting and the microfilm provisions of the act.

Hearings on Tunney's new bill will "undoubtedly" study the new requirement for using the Social Security number to identify customers, the aide said.

While there is no computer analysis of spending habits or political contributions already in the current microfilm records, an official in the Treasury Department's operations office would not rule it out in the near future. (Many banks were already microfilming records prior to July 1.)

But for the microfilm records to be useful, Tunney's aide said, the computer must "play a major role" in retrieving the records.

Computers might also be used to compile the lists of individuals who normally deal in large cash transactions sources said: banks would be required to keep such a list, for possible government inspection, under the provision temporarily enjoined in California.

In Congress recently, Tunney charged the act would create a "gigantic data bank apple tree, available for government picking."

Treasury Department officials claimed the act would not give the government any additional access to records.

At the Department of Health, Education and Welfare, an official disagreed. David B. Martin, special assistant to the HEW secretary and director of the committee on Automated Personal Data Systems, said his committee would not take "so relaxed a view" of the access implications.

He said the risk of access starts "when information is recorded." The microfilm records are now required to be retained for a longer period of time, he added.

Martin expects officials of the Treasury Department and the American Bankers' Association to explain the act and its ramifications before the committee, during its August meeting.

Soviet DP Said to Suffer From Bureaucratic Haggle

EAST LANSING, Mich. – Bureaucratic haggling is hampering efforts in the Soviet Union to establish a nationwide computer system that is seen as essential to effective economic planning, according to a Michigan State University researcher.

Kathryn M. Bartol, an MSU doctoral candidate in management, described Russia's inability to construct efficient data processing centers in the University of Glasgow quarterly journal, *Soviet Studies.*

"Progress is currently being severely crippled by administrative confusion and by a debate between the top governmental agencies over the structure and control of the network," she said.

Power Struggle

The two agencies are the Central Statistical Administration (TSSU), which wants to assume control of all economic information in order to detect and correct any deviation from the national interest before serious damage could be done, and the USSR State Planning Committee (Gosplan), which argues for a more decentralized approach that Bartol sees as a possible political maneuver.

The TSSU plan would also make more efficient use of scarce computer equipment and personnel, according to its proponents, and would still allow for regional planning without depriving central ministries of data.

Among the arguments for the Gosplan approach are claims that "decentralization of both data collecting and minor decision-making will result in more flexibility at the bottom and fewer bottlenecks at the top," and "the network can be planned and built by those who will use it."

Bartol explained that perhaps the specter of the TSSU keeping computer tabs on the plan fulfillment of local enterprises has been a major factor in the continuing viability of the Gosplan approach.

While the debate continues, she wrote, a computer network is already being built without any agreement on its overall design.

As the number of computers increases rapidly, one Soviet engineer described the field of computer technology in Russia as a "patchwork kingdom divided among various authorities and ministries," and said the result is a lack of coordination, wasted resources, jurisdiction impasses, duplication of effort and systems which are incompatible and cannot be linked together into a central system.

The problem is compounded by a general shortage of computers in the Soviet Union, Bartol added, and a dearth of peripheral equipment such as printers and tape drives.

"Computers regularly arrive without the proper programming support, so that even the most basic programs must be written by each installation," she noted.

"Moreover," she stated, "as things now stand, even if the existing computers were linked, in most cases they could not transmit data to one another because neither the computer equipment nor the systems for using the computers have been designed with compatibility in mind."

"The real answer may indeed lie with a new computer agency which could combine the efforts of TSSU and Gosplan, institute proper controls over economic information and clear away some of the confusion in the computer industry as well," she predicted.

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Operator Implicated In System Sabotage

(Continued from Page 1)

the experts decided to begin looking for saboteurs, the sources said.

A closed-circuit television system was installed to monitor all activity in the area.

Within three days, police said, a National Farmers employee was seen inserting a metal object between the circuits causing yet another short circuit. Denver police arrested Keith Noreen, a computer operator at the center for the past two years, on a charge of criminal mischief.

After the arrest, National Farmers officials said they would institute "much tighter" screening procedures for potential computer operators and restrict access to the computer room more than in the past.

In addition, they expressed the hope that computer manufacturers would "make it harder" for anyone to get at the circuitry of the machines.

Although no motive was given, Denver police quoted Noreen as claiming he had an "overpowering urge" to shut the computer down.

Students Study Simulated City

MINNEAPOLIS – Want to live in a model community? Then Blue City might be the answer.

Blue City is actually a mythical metropolis, existing only on paper and in the minds of instructors and students taking an urban studies course at Mankato State College near here.

Dr. Robert A. Barrett, urban studies chairman and instructor for the course, said Blue City is "an up-and-coming community thanks to our ability to simulate plans before actually putting them into effect."

As part of their training as city managers and county and regional planners, the Mankato students make decisions regarding city life and check the results on a Univac 1106 computer.

In the past there was a real problem in duplicating social behavior, but the advantages of the computer allow a laboratory for testing ideas for civic betterment, Barrett noted.

Most of the planning has proved beneficial as the students try to make economically sound decisions while at the same time pleasing the populace.

Wayward Bus Routes

Occasionally, however, the best intentions go awry. For example, the computer showed that three new bus routes planned to give better service to the poorer sections of the city actually ended up in cornfields. In another instance, a new factory scheduled for construction had to be postponed because no utilities were available near the site.

In the economic sector, decision-makers buy and develop land, operate businesses, transfer money and property and make investments.

In the social sector, decision-makers vote for public officials and referenda, allocate leisure time for work, education, politics or recreation and determine standards for and maintain the quality of goods and services.

In the governmental sector, the mayor, council and department heads determine tax rates, appropriate budgets and allocate expenditures for roads, schools, municipal services and highways.

"The computer keeps an accurate account of all transactions and their effects on other facets of city planning," Barrett added.

As part of its function in simulation, the computer makes assumptions regarding outside influences in city planning such as the uncertainties of federal aid, of outside construction and the economy.

The computer assigns workers to jobs, travel routes, children to schools, basing its decisions on a complicated series of criteria such as availability of housing, economy of route and quality of education.

Computer the Goat

NEW YORK – The computer is once again the scapegoat – this time in the city's social services department.

Some 10,000 "supplemental" welfare checks were delayed recently, and the *New York Times* quoted a city official as blaming a "breakdown in a computer."

According to the *Times* story, the breakdown prevented the mailing of the checks, which were adjustments to regular payments resulting from changes in income level or number of dependents.

The city official turned out to be a public relations spokesman.

At the data processing department, an official said there was "no delay on our part," and stressed there was "no problem" with the computer. The explanation given by the public relations spokesman was a "misunderstanding," and the real cause of the delay was in the post office, according to Ken Brody, acting DP manager.

"We got the checks out in time," he commented, adding that vacations and other personnel considerations at the Post Office caused the delay.

High Quality Can Mean Lower-Cost Equipment

DALLAS – High quality does not necessarily mean high price, members of the Data Processing Management Association were told here recently. C.C. Rice of University Computing Co. (UCC) said high quality people, machines, supplies and facilities offer "myriad opportunities" for cost reduction.

Speaking before the Six Flags Chapter of DPMA, Rice said that taking advantage of plug-to-plug-compatible peripherals, manufactured by both the "primary vendor" and his competitors, provided for more savings.

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Technology/Society — Part III

Poverty Projects Suffering From Technology Underuse

By E. Drake Lundell Jr.
Of the CW Staff

CAMBRIDGE, Mass. – Computers and other new technology have been recognized as potential aids in the fight against poverty and the efforts to upgrade disadvantaged communities at the local level, but neither the Office of Economic Opportunity (OEO) nor the major computer makers have realized the full potential of such systems.

That conclusion comes from a Harvard University Program on Technology and Society which explored the issue, because "poverty communities in large urban areas must be able to plan objectives over time, to measure achievements and to define options and their consequences for future action."

'Appropriate Technology'

The program felt that such objectives could only be met in the poverty communities through the introduction of "appropriate technology," such as computer-based information systems, "through an established community institution."

> This is the third in a series of reports on the conclusions of an eight-year Harvard study on the relationships between technology and society. Part I [CW, July 19] discussed why computer-based information systems failed to fulfill their early promises to aid in governmental decision-making. Part II [CW, July 26] outlined some of the philosophical questions raised by the use of such computer systems by all levels of government.

The study, conducted by Cyril D. Tyson for the program, noted that many municipalities have created community action agencies to administer anti-poverty funds allocated by the Office of Economic Opportunity.

Most of these agencies, Tyson said, "have access to computer facilities and they train and employ individuals from the poverty community as comupter operators, programmers and key-punch operators."

His study, he said, was aimed at discovering what advantages or disadvantages come to these agencies through the use of computers, how the decision was made to acquire the computer systems, and to discover the effects the involvement with computer technology had on the boards, staffs and constituents of such agencies.

To answer these questions, he investigated the operation of nine agencies that either owned computers and peripheral equipment or leased time on computers outside their agencies. The nine were drawn from a wide geographical distribution.

"Initially," he said, "the involvement of the community action agencies with automated data processing came more out of reporting and management needs intrinsic to the agencies than out of a clear perception of the technology as a broader tool for the development of the entire community."

Broader Use

But, while that was the initial use for most systems, he noted there has been "some movement toward broader use of informations systems."

In some cases, he said, the agencies have used the power of computers only for applications such as payroll, budget control, inventory control and personnel, but in others "the stress has been on the development of client information systems."

In one of the cases studied, the agency involved did such a good job of developing client information systems that it became the center for processing such information for five other agencies, he added.

In another case, the agency, because of its well-developed data gathering and analysis capabilities, "provided five municipal agencies with supportive information about the poverty community that made it possible for those agencies to carry out their responsibilities and provide a higher quality and consistency of service."

But despite these successes, Tyson noted that the preliminary findings of the program indicate that "in the majority of cases" the board of the local poverty agency "did not fully understand the full potential of the technology" of data processing.

In addition, he found that "where the introduction of automated data processing involved relocation of certain management procedures, the head of the affected unit tended to perceive the action as diminishing his function and control."

Another major finding was that wherever DP was "introduced as part of the development of a client information system, there arose problems of differing perceptions of purpose, need, utility and control between the operational staff and the program planning, evaluation and research unit."

He also said that little thought was given – and no overall procedures established – for the dissemination of data or information to bodies or institutions outside the poverty agency.

In some cases the data compiled and analyzed by the poverty centers was not trusted by other agencies, he indicated.

"The community agencies were perceived as highly political, and therefore as untrustworthy sources of data for other agencies or for organizations in competition with them for scarce resources," he said.

"In addition, fears were expressed that the programs of other local agencies and organizations might come under attack by the community action agencies, in which case it would be inappropriate for the latter to have control of the data."

It is clear, Tyson stated, "that the poverty communities recognize that information is needed for adequate planning, management performance and evaluation and appraisal of the performance of other agencies that serve their communities.

"Some community action agencies have arrived at a substantial conceptualization of the implications of a management information system for their development functions."

But at the same time, he warned, "it appears that OEO had no basic policy in awarding grants for management information systems. There were no consistent criteria of selection across regions, such as computerization potential.

"Initiative in moving toward a management information systems grant tended to come from the regional office rather than from the community action agency," he said, "yet the OEO never attained the level of conceptualization that was developing in the community action agencies."

He also noted that most of the equipment used in the programs came from IBM, which, he said, in some respects emerges as a mirror image of OEO.

IBM's Policy

"OEO has no policy on technological development of information, and IBM, correspondingly, appears to have no policy of social and economic development of poverty communities."

Often, individual IBM marketing representatives assisted community action agencies in thinking through appropriate applications for the computer, he added.

"But when no help was forthcoming," he said, "no help was available from IBM management even when – as happened in one case – the community action agency shifted its patronage to another computer hardware company because it was dissatisfied with the level of technical assistance provided by IBM.

"Neither OEO nor IBM appears to have perceived the significant implications for community development in the uses of computer technology," Tyson concluded.

Pay Delay Closes School Lunch Program

By Molly Upton
Of the CW Staff

CLEVELAND – A delay in computer-generated payments for a school lunch program closed the lunch room of St. Agatha's school here in July.

Two days later, when the school received its April reimbursement check from the U.S. Government, the lunch program was reopened, according to Sister Elaine Eggert, school principal.

According to Sister Eggert, the U.S. Department of Agriculture (USDA), which sponsors the program, began conversion to a computer system in April 1971. "They promised us our checks would be in within two weeks instead of six weeks. Well, I think they meant six months, really. We have never received any check within two weeks, and have waited two or three months before any checks arrived," she explained.

The Department of Agriculture has been processing payment requests on an IBM 360/65 since December, and "the problem is definitely not a computer problem. Basically the problem has been input to the system," according to R.W. Brannon, director of the Finance and Program Accounting Division at the USDA.

There were software bugs at first, and a slowdown occurs in the rejection process of improperly filled out forms, he said. But usually the department processes the requests within 10 days of receipt of the form, he said, and the information is then sent to the Treasury Department for payments.

"But in our case it isn't an input problem," Sister Eggert countered, because "our forms would have come back to us, if they weren't filled out properly. This happened only once."

Applicants don't give the right information on the claim form, or fill it out improperly, Brannon claimed. They are told to right-justify amounts of expenditures, but this "doesn't really mean much" and results in bad data, he said.

Rejection Process

"It's in the rejection process that you begin to ultimately slow down the payment. Before, on a manual basis you could make the phone call and get the thing corrected and get it paid, but through a computer system, you've got to submit it against the computer to find out whether it will accept or reject," he said.

When rejected, the form is sent back to the sponsor for proper completion and then is handled as a corrected claim, he explained.

Brannon said St. Agatha's had been mailed its April check, and the May claim was the one that had to be returned. The check for June should be out of his department early this month, he added.

Rebates Also

Compounding the charge of late payments was the fact that St. Agatha's had petitioned for rebates on amounts paid by the government for each lunch, for 52 cents a meal rather than the base 35 cents paid, for the months of December to February. From February to the present, the school petitioned for 60 cents a lunch.

On May 11, the rates were adjusted retroactively by the Chicago office. "Our system does not recognize a retroactive. Yesterday we put a check in the mail covering the retroactive part, about $2,300," Brannon said.

"I'm sure that if St. Agatha's went back they would find out that the claims they submitted that were prepared properly were paid almost immediately, but they were paid wrong. They weren't paid the way they thought they would be paid, but we paid them, according to what our master file said should have been done. We have tried to resolve with the Chicago office this bit about making retroactive contracts," he added.

The department has updated St. Agatha's file to include the new rates, and manually processed the payment for the retroactive amount.

State Keeps Lawsuit List

INDIANAPOLIS, Ind. – The state attorney general is using a computer-prepared listing of active lawsuits to keep tabs on possible tardiness in state cases.

A weekly report is sent to each responsible deputy attorney general, showing some 1,800 active cases in which the state is a party. Each individual is required to file status reports.

The system can also be used to help equalize workloads and remind deputies when action is due.

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Dartmouth Welcomes 'Juniors'

It's All Fun for the Kiewit Kids

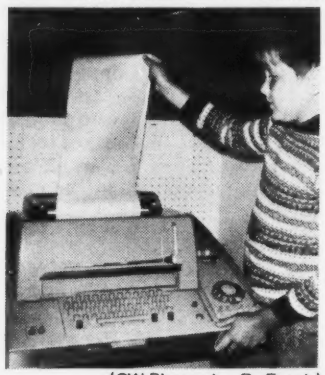
By Ronald A. Frank
Of the CW Staff

HANOVER, N.H. – Mark Manasse was working on a simulation program. He already had one version which he clutched in a rolled-up printout. "It needs more work." he explained, "I haven't defined all the variables yet." As Mark walked away, he was joined by David Pearson, a Dartmouth student and systems programmer at Kiewit Computation Center who was explaining his "base negative two" binary scheme to Dennis Warner, a programmer for the Dartmouth economics department.

What is unusual is that Mark is 14, and like so many of his peers, the Kiewit Center with its massive time-sharing system offers an opportunity to become familiar with programming and terminal operation.

The simulation program that Mark is developing duplicates the operation of a pinball machine. And his goal along with many of the other Kiewit junior users – known as J-users – is to add his game to the large list that is available.

"The junior users get about 10 hours of time per month," said Tom Byrne, assistant director and administrator at Kiewit.



(CW Photos by R. Frank)

Paul Fearon, 11, checks the printout being generated by the Dartmouth Time-Sharing System. Paul likes to play tic-tac-toe, baseball and football games on the teletypewriters.

"With their special user number they get about eight seconds of run time and we give them a 2K word limit on main memory with programs limited to about 16K," he added.

The juniors utilize much of the spare time available in the summer and don't interfere with more important research and administrative jobs, Byrne said.

Doug Hornig, 14, right, turns his geometric program on the Dartmouth DEC PDP-9 as Steve Gomo, 14, and Mark Manasse, 14, watch.

But the limited resources are certainly no problem to the young students. Doug Hornig, son of a Dartmouth professor, wrote a program that produces a circle of dots on a PDP-9 system with a CRT display. The sines and cosines for the program gave him a little trouble, he said, but now the program runs smoothly.

Doug is 14 and has also written a game called Gomoku, which he described as an "oriental version of tic-tac-toe." The CRT program on the PDP-9 took him about five days to write including debugging time, he said.

While the kids are having fun with the computer, some much more idealistic goals are also being met. In a descriptive booklet of the Kiewit Center, Dartmouth President John G. Kemeny wrote: "No student at Dartmouth has a fear of the machine. Any student may walk into Kiewit Center, sit down at the [teletypewriter] console, and use the time-sharing system. No one will ask him whether he is solving a serious research problem, doing his homework the easy way, playing a game of football or writing a letter to his girlfriend."

And there's no doubt the kids in the Kiewit public Teletype room are enjoying themselves. "This is the greatest babysitter in town," one staff member said referring to the young visitors.

Most of the younger students play the computer games, but some have other projects. "I'm here at camp for the summer," said Jimmy Etkin who lives in New York City. "I got a user number from my friend and I come here to run off Snoopy pictures and banners," he said.

Among the most popular games with the youngsters is the Can-Am race written by Mark Manasse. It is now in its third version, with the original program written in 1970, Mark said. Other popular games include Toro – "where you can be the matador and the computer is the bull," according to Jimmy Etkin; and Spaceboard – "where you have to keep the spaceships from crashing," according to Steve Klunder, 14.

To the Kiewit staff the young students are busy acquiring computer usage principles. To the students the fun at the teletypewriters is hard to beat.

One Dartmouth doctoral candidate in psychology summed up the feelings of many who watch the kids: "I hesitate to chase them off the PDP-9, I can learn more by watching them with the system than I can by operating it myself."

Tests Give Monkeys the Go-Around

LEXINGTON, Ky. – Monkeys are riding thousands of miles around a large laboratory at the University of Kentucky as researchers try to learn more about the effects of gravity.

Computer-controlled experiments involving a 50-foot radius centrifuge have two aims, according to Prof. James F. Lafferty of the Wenner-Gren Research Laboratory.

"First, we are trying to determine what effects increased gravity has on an organism's behavior.

"And, coincidentally with those studies, we are trying to determine the effects upon an organism's health."

An IBM 1800 data acquisition and control system runs each experimental effort on the rotating centrifuge. As its speed increases, the centrifuge creates conditions of increased gravitational pull on the capsule and experimental subject in it.

Designing a series of experiments to learn how much a monkey will do to avoid higher and higher levels of gravity pull, the research team has programmed the computer to increase the centrifuge speed until the money activates a lever inside his capsule.

Tripping the lever notifies the computer to reduce speed for 20 seconds. If the lever is tripped again, speed is further reduced for a 20-second period.

As the monkey experiences less and less gravity, he may ignore the lever for 20 seconds or more. Then, speed picks up again until he notices increased gravity and again activates the lever.

News Wrapup

Schenectady Gets Off-Track Betting

ALBANY, N.Y. – The Off-Track Betting Commission has given the go-ahead for the city of Schenectady to launch the first computerized off-track betting operation in upstate New York.

Approval of the operation is conditional upon the submission of more information about the local OTB commission. The city was also instructed to abandon plans for a manually operating betting system that was intended as backup for the main computer system.

The upstate operation will use Control Data Corp. machines, the same as those used in the New York City system, officials said.

The Schenectady operation was one of three proposals exempted from a one-year freeze on new OTB endeavors imposed by the 1972 legislature, pending a study of OTB's impact on the tracks. Two other counties have plans awaiting approval.

Savings Seen With Computerized Bus Routes

MANHATTAN, Kan. – School bus routes devised by computer could save this state about $4 million, according to a Kansas State University economist. The projection was based on data from two recent experiments with computerized routing.

In one district buses were routed by computer and a savings of about 25% – $10,000 in one school year – was effected in vehicles and operational costs. A similar savings could be expected on a statewide basis, about $4 million, according to Leonard Schruben, KSU economist.

In another district, one segment of bus routes was given to the computer which indicated that in certain areas where three buses were being used, only two were needed.

The district is expected to try for more savings of money, miles and buses this fall through more computerized routing, Schruben said.

Road Agency Cuts Man-Hours With County DP

YREKA, Calif. – The Siskiyou County Road Department expects to save about 120 man-hours per month, since it began using the county data processing services.

The department uses the computer services for cost-accounting of field equipment. The additional analytical information supplied by the computer enables department officials to quickly and easily know the cost of each piece of equipment by the hour as compared to the cost of maintaining it, according to the road department's Jim Coleman. He figured 120 man-hours were saved with the added cost analysis.

The road department is now one of eight county offices sharing the services of a 360/20 and will account for about 10% of the DP department's time.

MDs Want Help in Figuring Medicare Fees

MONTREAL – The Canadian Medical Association plans to hire professional negotiators and economists to help members deal with the government's data bank of Medicare payments.

Dr. H.O.L. Murray, chairman of the association's economic council, said the doctors lack the expertise to deal with government computers which keep track of $1.2 billion in annual Medicare costs.

Dr. Ed Moran of Toronto said problems caused by "computer errors" have arisen and the doctors need help in keeping a "close eye" on computer data..

But Would Princess Twiggy Like Royalty?

LONDON – How's this for a mate, mate? Asked to pick a perfect mate for Prince Charles, a computer in England decided on Twiggy.

According to the computer, they are about the same age; both feel uncomfortable with strangers; both have calm natures and are not intellectuals; both love music and dancing; they go to church regularly and neither is terribly ambitious.

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British Union Set to Fight Dehumanizing Effects of DP

By Joseph Hanlon
Special to Computerworld

LONDON – Militant labor union action is needed to stop the dehumanizing effects of computer-aid design (CAD), according to one of the largest unions in the UK.

White collar workers, including computer professionals, are increasingly being regarded merely as "machine appendages," the union charged.

The union, the Technical and Supervisory Section (Tass) of the Amalgamated Union of Engineering Workers, originally represented draftsmen and designers, but recently it has recruited computer programmers and other professionals in the CAD field. The union's members both design and use CAD systems.

The charges and recommendations are contained in a booklet, "Computer-Aided Design – Its Nature and Implications," by Tass past president Michael J. E. Cooley, and is available free from the union at Onslow Hall, Little Green, Richmond, Surrey, England.

CAD is not introduced to save wages, Cooley argued, but rather to reduce the time between the original design concept and actual production. But CAD equipment is so expensive that the people who use it must be far more productive. The result, Cooley charged, is fewer designers working much harder.

Cooley cited three dehumanizing aspects of CAD. First, because the equipment is so expensive, it must be used 24 hours a day, which means that often for the first time designers and programmers must do shift work and work overtime. Speedups and work measurement are frequently added.

US Study Cited

Second, the rate of decision-making and its resulting strain are increased. He cited a U.S. Department of Labor study which showed that an aerospace designer spends 95% of his time doing reference work and only 5% actually making decisions.

But the computer can do the reference work, he said, which increases his decision-making twenty-fold.

Finally, Cooley argued that computerization leads to fragmentation – each person does a smaller part of the job.

But Cooley also sees CAD and other forms of computerization as aiding unions. As dehumanizing work procedures are forced on professionals, he argued, many will join unions, just as production line workers did in similar circumstances years ago.

"We as a union are not opposed to technological change," Cooley stressed. "Indeed, it is our members who design much of the equipment that makes technological change possible. We are, however, fundamentally opposed to the misuse of technology."

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Quebec Backing Away From IBM Tapes, CPU

QUEBEC CITY, Que. – It took three years, but the Provincial Government has carried the independent peripheral course to its logical conclusion: the elimination of IBM mainframes.

Three years ago, MAI tape drives were installed on the government's two 360/50s, and since that time CDC disk drives were also added.

Proposal Too High

The government has been an IBM shop for 12 years now, officials related, but decided to go out for bids when IBM's proposal for two 370s, a Model 155 and a 145, seemed too high for a planned upgrade.

While the bids were coming in, sources said, IBM downgraded its proposal several times, first to two 145s, then to a 145 and a 135, and finally to a single 145.

Officials said they would rather have a Univac 1106 multiprocessor, which provides "more power at less money." Delivery is expected in September.

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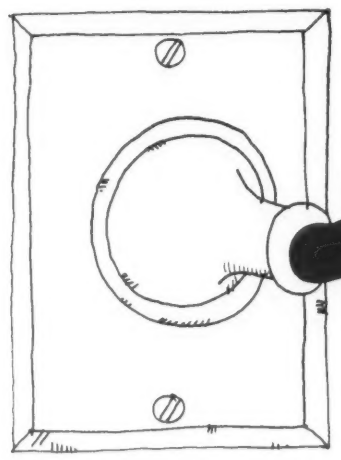

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ACM Finalizing Annual Confab

BOSTON – Planners for the upcoming annual conference of the Association for Computing Machinery (ACM), Aug. 14-16, have come up with a rarity: a sellout of space rental.

This is not so startling as it may seem, however, since the space rental is not three days of booth-space in an exhibit hall, but rather, 90 minutes to make a "sales pitch." All 12 firms participating in the Commercial Program will discuss software, so the presentations are collectively entitled "Computer Software – the State-of-the-Art."

The Commercial Program idea was adopted after other groups' conferences had experienced losses by failing to sell sufficient booth space. In recent years, ACM had held "public service" exhibits, with hospital, municipal and other related computer applications demonstrated.

This year, the exhibit hall idea has been abandoned in favor of the product announcements, demonstrations and technical descriptions of the software items.

Two opening sessions of the Commercial Program will feature panel discussions of concepts, rather than individual products.

The subject of the first panel is venture capital [CW, June 28]. The second is entitled "President's Panel," to be comprised of several EDP executives, describing the problems of founding, conducting and expanding a computer business.

IBM and Control Data Corp. will describe software during the remainder of the program.

Other Participants

Applications, measurement tools, file management systems and other software will be discussed by the following firms: Boole and Babbage, National Information Systems Corp., Computeria Inc., Information Management Inc., Informatics, Cullinane Corp., Express Software Systems, Comress and The Computer Company.

ACM expects to make a profit of around $7,000 on the Commercial Program, according to Adrian Ruyle, conference chairman.

Preregistration is also running slightly ahead of last year's meeting, Ruyle commented. He said 1,500 to 2,000 people are expected for ACM '72, but the total could be higher because of the location, in the heart of "electronics row."

Chess Tournament

The meeting unofficially begins with the first round of the computer chess tournament, Sunday evening, Aug. 13. The three-round three-day tournament is held under the sanction of the U.S. Chess Federation, and is open to the public for a $2 admission fee for each session.

The Commercial Program is free of charge, and the admission to the technical program is set at $40 for ACM members, $65 for non-members, $10 for student members and $18 for students who are not members of the organization.

All events take place at the Sheraton Boston Hotel. Information is available from ACM '72, P.O. Box 611, Concord, Mass., 01742.

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Editorial

On Gagging the Giant

We applaud the decision of the Eighth Circuit Court of Appeals permitting IBM to go ahead with its product announcement planned for today (see story on page 1).

Without debating the merits of the case brought by Telex, we think the action by Telex and Judge Neville's temporary restraining order were both premature. As we understand it, Telex doesn't object to the new systems per se, but to certain features that Telex believes will be standard equipment, rather than options.

We support the decision because it will allow IBM to clear up the rumors that have been circulating in the computer community about the new machines.

With the IBM announcement cleared, both users and the competition can scrutinize the new products for possible antitrust violations with something more than industry rumors as the basis for their examination.

'Really Now, This Fuss the Americans Make About Computers and Privacy...'

Letters to the Editor

'Speculation Continues,' Consumer Demand Changes

The July 19 issue jumps with competitive or "open market" news. Edward J. Bride's Greyhound story breaks the antitrust seal and "Speculation Continues" certainly does continue the thesis: computer community come alive . . . ye may still prosper . . . independents cried for competition . . . they giveth and now stand to receiveth. Antitrust?

Big mainframers are not "community trusts" but at least one seemingly must act as such to stay out of the courts. But Judge Walter E. Craig, too, notes that ". . . . 'size alone' does not constitute a violation of the Sherman Antitrust Act."

Now "speculation continues" about the giant competitively offering what users want, even though other major mainframers have had similar concept offerings for some time, becomes more than market timing (other industries call it competitive extrapolation) . . . . does this now constitute valorization imposition/control over composite user demand? Market glut or competition . . . what does the community desire?

Paraphrasing: Since many smaller competitors are just gearing up for delivery of cut-rate replacement component models, the entire consumer demand changes, before hindsight marketing enterprises even get a foothold; 1976: what is needed is larger payments to independents keeping regulatory agencies in business. Casper W. Weinberger: "With friends like the regulatory agencies, consumers don't need enemies."

H.J. Bott

Galveston, Texas

Hopeful Glimpse Into Future

While thinking about the recent articles concerning flood damage to computer centers, I had an interesting glimpse into the future – endangered centers transmitting their entire information content to other centers, secure from the impending disaster – whatever its nature.

Janet E. Huyek

Iowa City, Iowa

CDP Exam Questions Better

I hope this isn't turning into a progress report, but I wanted to provide you with some input concerning the latest CDP exam. In the March 1 issue I discussed my thoughts concerning the possibility of the management and quantitative sections being too general.

I stated that a person with detailed knowledge and exposure on these subjects was handicapped because of the general nature of the questions.

I sat for the 1972 exam, and while taking the exam discovered that the questions in these two areas were vastly improved . . . more specific. I later received the exam results indicating I had passed these two sections. I personally believe my passing was a direct result of improved questions on the CDP. I hope this improvement continues.

Richard Booker
Training Consultant
Systemation, Inc.
Colorado Springs, Colo.

S/3 Is B-1700 Compatible

In the June 28 issue, "Ferguson on System/3," Ferguson states that the System/3 is "totally incompatible . . . with any other computer from any other manufacturer."

On June 7, Burroughs released the B-1700. According to the release, all RPG-I and RPG-II source decks may be compiled on the B-1700 with little or no modification. This includes the 96-column card.

The B-1700 has multiprogramming and virtual memory capabilities and is source code-compatible with all larger 700 Series computers.

The cost of a minimum B-1700 configuration is comparable to that of the System 3.

Stan Buraszeski
Data Processing Manager
Vulcan Materials Co.
Chemicals Division
Wichita, Kan.

See Ferguson's column in this issue. Ed.

Compatibility Retained

Add another to your list of computers capable of handling The Statistical Package for the Social Sciences (SPSS). It was originally converted to the B6700 at the University of California at Davis and further modified here at the University of Delaware.

Apparently compatibility has been retained. We recently moved a B6700 SPSS job to a 360/75; it ran with no changes.

Kevin R. Jones
Director
University of Delaware Computing Center
Newark, Del.

90-Day Period for Tariffs Unrealistic

By Arthur Carr
Special to Computerworld

In the July 5 issue there was an article headlined "New AT&T Modem, DAA Rates Okayed Pending FCC Study." The headline illustrates a glaring inequity in administrative procedures concerning telephone tariffs. The result of this inequity is to penalize the consumer and all others affected by unlawful tariffs.

While the text of the article makes it clear that the Federal Communications Commission has not approved the tariffs, which go into effect, and that AT&T must give specific notice that there has been no such approval, the use of the phrase "okayed" in the headline conveys the impression that there has been some form of regulatory agreement as to the propriety of these rates. This situation is illustrative of a significant problem existing today in the regulatory process.

Investigation Period

Whether required by law or adopted as a matter of policy, the practice of the FCC has been to suspend objectionable tariffs for 90 days and set them for investigation. This investigation of necessity must take more than the 90-day period. Thus, the rate usually goes into effect automatically at the expiration of 90 days even though the investigation may go on for years.

The problem here is that the parties suffering from the unlawful tariff must endure that impact of the tariff throughout the lengthy administrative process.

It is unrealistic to argue that the administrative processes should be shorter, they are not – the 90-day period is unrealistic and should be viewed unrealistic by many agencies.

Viewpoint

In some instances the rate goes into effect, but an accounting order is issued whereby the carrier company must keep track of the rate and return to the consumer any amount later deemed unlawful.

Permitting the rate to go into effect, however, give a strong impetus toward continuing the rate. In any case, the unlawful rate does affect the market and a subsequent decree of unlawfulness entered many years later cannot undo the harm.

Unacceptable Procedure

Whether the FCC can itself change the practice or whether it requires an amendment of the Communications Act of 1934, it is clear that immediate steps should be taken to change a completely unacceptable procedure.

The regulatory agency must have the flexibility of delaying the effectiveness of tariffs beyond such a short period as 90 days. The regulated carrier has an interest in proper administrative proceedings and has its rights, but so do others affected by telephone tariffs.

The current practices are remnants from an era when the regulated carrier was deemed to have the predominant interest. It is time to reflect the change in the climate and what the public expects from the regulatory process.

Carr is vice-president of the Independent Data Communications Manufacturers Association, Inc.

Editor's Note

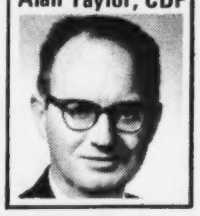
An article in the July 12 issue headlined "An Exercise in Elaborate Inefficiency" referred to a software system called "Interbase." The name was "made up" by author Miles Benson to disguise the real situation he was writing about.

It turns out, however, that International Data Resources, Tampa, Fla., began marketing a file management and information retrieval system last year under the trademark Interbase [CW, Dec. 1, 1971].

Computerworld apologizes to IDR and its customers for any embarrassment that this unfortunate coincidence may have caused.

Few Realize Wasted Resources of Local DP Schools

The Taylor Report
By
Alan Taylor, CDP



Data processing schools for years have been much attacked by the DP profession. Numerous speeches have been made saying how much reform is needed. Various people have issued sets of guidelines, giving some sensible (and some ridiculous) rules.

Curriculums have been produced which would make successful practicing data processors take up accounting as their profession rather than face the courses apparently considered necessary. Much has been done to point out the dangers of the schools, but no one seems to have thought of the schools positively – using them as a resource for the profession instead of damning them with faint praise or outright condemnation.

This failure to recognize and build on the good points of the schools has had some unfortunate results – unfortunate for the schools themselves in terms of lessening the continued association of their graduates with the school, and unfortunate for the profession which has been deprived of many advantages it could have had.

Cobol Question

George Baird, editor of the Cobol Information Bulletin, recently complained of the failure of the bulletin to obtain any significant response from the Cobol community [CW, July 12]. The DP schools could have helped him if the Cobol Information Bulletin people had realized what resources these schools had, and had arranged to utilize them.

And William Rinehuls, vice-president of the Cobol Programming Languages Committee (PLC) – who recently complained that two-thirds of the Cobol community has never heard of his important committee – could also have been helped in having his work known through the schools, if he had realized what a resource they really are. Other people could have been helped, but these two will do for a start.

The PLC is where the actual decisions as to what Cobol is are made. If it excludes a feature, then it does not go into Cobol. It can, if it wishes, drop the Report Writer feature. In short, it is a very powerful committee.

But it is a poor committee. It does not, for instance, have funds to make the minutes of the meetings freely available – although they are public documents. Neither does it have the funds or the organization to allow the various Cobol change proposals to be made available, together with the reasons why the changes have been proposed.

New members of the committee often have to scrounge around to fill their files, and even then it often takes a year before the intricate documentation system begins to make sense to a newcomer.

Yet what is needed – and what PLC is apparently too poor to afford – is a publicly accessible data base of the 500 or so documents that tell the story of current Cobol development – together with an understanding of how the documents hang together. That is not too large a job – and it is one which is easily broken down into manageable subtasks.

What is needed to perform this task is simply an understanding of Cobol, some available time and some information retrieval and analysis programs. PLC may not have these capabilities, but the DP schools throughout the country certainly have!

SCDP Asked Schools

Yet, until recently, no one thought of asking them to help the community. The first people who did ask were the Society of Certified Data Processors. They heard of PLC's problems and decided a data base for the community should be started. Having decided this and having appropriated some money to start the operation, the society soon asked just where the data base could operate.

At the time, I was just starting to visit several DP schools in the U.S. – in connection with the Furr Challenge Cup Contest. The first school was Computer Processing Institute in East Hartford, Conn. [CW, July 26].

I asked the school whether it could help us. Naturally it first wanted to see the documents concerned, to find out the size of the job.

It turned out that the size of the work involved would not be great. The school would have one locked four-drawer filing cabinet. The school would punch up some 1,500 card/mo from the minutes and other documents. It would be involved in merging, sorting and printing these cards. And finally it would provide library space for people to read the documents, together with a small lending operation.

The school's president, David Shefrin, and vice-president, Harold Bingham, both felt these functions were well within their capability.

Later I checked with other schools involved in the Furr Challenge Cup Contest. I found there will be more assistance available. If Computer Processing Institute acts as the original entry part of the system, then other schools may concentrate on examining the documents to see how long it takes for Cobol changes to be made, or other interesting facts.

One school, for instance, will probably concentrate on the Report Writer, picking up and maintaining documents on the suggested Report Writer facilities. Another may go into the mass storage area. Another into debugging, or asynchronous processing.

This would be very helpful. The plan can, of course, be expanded enormously. Schools can decide to concentrate on developing any particular aspect as a knowledge base.

Schools can act as early warning signals against efforts to remove part of the language. They can act to assist the committee in obtaining the publicity for its actions. They can even test out the facilities provided in the various commercial compilers, and see whether or not they really do conform with Cobol!

Schools Real Resource

In fact, the schools can very greatly assist the profession in their own right. But beyond this they can then help us professionals to help ourselves.

I mentioned earlier that the documents are, in fact, hard to read. Examining unfamiliar documents does take time – and the time of the people who are currently fairly familiar with the Conference on Data Systems Language (Codasyl) documentation is very expensive.

But the schools – the DP schools – have access to people who are much less expensive. They have access to students who are working their way through the school. They have access to instructors who are already knowledgeable. They often have access to secretarial assistance. And generally they could provide this aid at a much lower cost. And these people can make themselves familiar with Cobol documents!

The Cobol community can therefore hope, with an assist from the schools, that it can have economical research, as well as accessible data – neither of which it has at the moment.

I think that is a good idea. I am glad the Society of Certified Data Processors has taken the lead in assisting such a chain of resource thinkers across the country. But we still need to find the schools who will assist.

If you are associated with a school, perhaps you could drop me a line. There is not much involved, and you can be of great service to the community.

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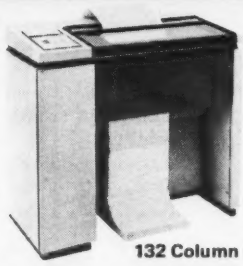

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Random Notes

No Vote Taken on Future Of Cobol Report Writer

DAYTON, Ohio – Discussion of other items prevented consideration of a motion to drop the Report Writer feature from Cobol, which had been on the agenda of Codasyl's Programming Language Committee (PLC) meeting held here recently [CW, July 12]. The item has been rescheduled for PLC's meeting in Ottawa, Canada, the end of this month.

PLC chairman Ronald J. Ham of Honeywell said he would welcome additional comments from users so the committee "will not make its decision in a vacuum." Ham's address is 200 Smith St., Waltham, Mass., 02154.

Payroll Processing Handled By 'Tops' on Decsystem-10

SAN DIEGO – An on-line Terminal Oriented Payroll System (Tops), is available from Copley Computer Services, Inc. (CCSI) for the Decsystem-10. All operations including entry of worker hours, file maintenance, inquiry, use of the tally feature and report generator parameters can be done from a local or remote terminal, the company said.

Tops allows individuals to be paid on a default basis. When all defaults are applied, the only required data input through the data collection phase is the effective date.

The system has tax structures providing for any city/county/state and federal taxing. It provides for taxable and nontaxable earnings; taxed inclusively, exclusively or not at all.

Written in Cobol, the base system costs $20,000, from 1253 Garnet Ave., 92109.

. . . Was Developed by . . .

The report-formatting programs used by CBS News in its coverage of the Democratic National Convention [CW, July 12] were developed by APL Services Inc. of Trenton, N.J. CBS spokesman Warren Mitofsky said he turned to the outside supplier to supplement the skills of his own staff in APL.

– – –

Software support for the split-screen CRT operation recently installed by the Atlantic National Bank [CW, July 12] was created by Turnkey Systems, 111 East Ave., Norwalk, Conn., 06851.

– – –

. . . Is Marketed by . . .

Extended DOS (EDOS), developed by The Computer Company [CW, April 12], is now being marketed in the U.S., Europe and the Soviet Union by CIG Computer Products Inc., subsidiary of Computer Investors Group, 1351 Washington Blvd., Stamford, Conn., 06901.

Codasyl Asks Help

How Useful Are Data Base Managers?

By Don Leavitt
Of the CW Staff

ANN ARBOR, Mich. – Codasyl's Systems Committee is preparing a guide on the use and implementation of generalized data base management systems, and seeks comments and documentation from users and software developers.

Copies of evaluation reports users may have prepared for their own internal use, after working with data base management systems for six months to a year, are particularly sought. This type of report is likely to describe problems as well as virtues of the systems, committee chairman Professor Edgar H. Sibley of the University of Michigan explained.

Developers are asked to tell how they designed and then implemented their data base management software systems.

What Kind of Success?

Detailed information about how the user expected to build and then utilize his data base – and how well he succeeded – would be helpful, Sibley said. User personnel plans and actual experience related to data base management-based systems would add to the committee's understanding of the projects, he added.

Comments about vendor support or the lack of it would also be useful, he noted. Aware that some of the information requested may be sensitive, a committee aide said names and affiliations of contributing users will not be in the committee's final report even if permission is given to use them.

In the report, user considerations will include an analysis of systems employing generalized data base management, and an analysis of the requirements such systems place on a generalized data base management system.

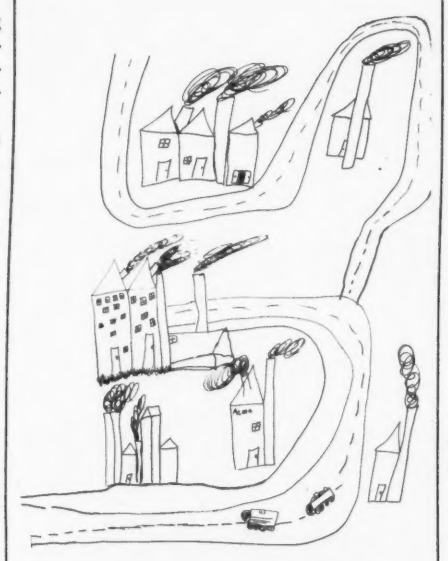
Implementor considerations will include the implementor's hardware/software environment and the implementation alternatives available in that environment. An attempt will be made to show how user requirements can be satisfied within current implementation technology, with particular emphasis on the trade-offs available to achieve this.

The guide will conclude with discussions of the detailed design processes followed by an implementor of a generalized data base management system and by a user in applying such a system to a particular data processing system.

The committee's study of generalized software, particularly generalized data base management systems, during the past four years has already produced two widely distributed reports: "A Survey of Data Base Management Systems," published in May 1969 and "Feature Analysis of Data Base Management Systems," published in May 1971.

Comments should be addressed to the Codasyl Systems Committee, P.O. Box 124, Monroeville, Pa., 15146, or to Dr. Edgar H. Sibley, Room 120, West Engineering Bldg., University of Michigan, Ann Arbor, 48104.

Debbie Hiers 4th Grade



As I See It...

Debbie Hiers was only in Grade 4 when she drew this picture to illustrate a booklet about the time-shared Marc II mortgage accounting service from University Computing Company, 1949 North Stemmons Freeway, Dallas, Texas, 75207.

OS-Based Tape Library System Prints Labels, Answers Queries

HOUSTON – Gulf Computer Sciences Inc. (GCSI) is now delivering copies of its Tape Library Maintenance System (TLMS) package to OS/360 installations. It has been in use at Gulf Oil, GCSI's parent corporation, for two years.

The system is designed to eliminate most of the manual record-keeping functions in the tape library. It operates online, printing labels for the tapes and updating records on a tape volume master file, stored (ironically but practically) on a direct access device.

As required, reports are prepared showing which tapes are available for reuse, which are due for cleaning and certification and which are out of service.

TLMS uses data captured by IBM's System Management Facilities (SMF) option, and communicates with the gummed label writer and with the librarian's console through the Multiple Console Support (MCS) option, GCSI said.

A gummed label is completed by TLMS when an output tape volume file is closed. If printed on continuous form adhesive labels (treated to produce carbonless copies), the original is attached to the tape reel and the copy forms a log for the librarian.

Address on Label

Since the label is printed as the reel is rewound, it can be attached as soon as the reel is ready to be dismounted. Inclusion of the tape drive machine address on the label minimizes the possibility of putting it on the wrong reel, the company said.

Even during a production run, librarians using TLMS may use a CRT or teletypewriter terminal to check the status of the tapes used.

TLMS is available for $416/mo for 12 months, after which payments are waived. GCSI is at P.O. Box 2100, 77001.

'Pure-File' Matches Odd Name, Address

NEW YORK – The Pure-File service from Computeristics Division of Uniroyal Inc. enables DP managers to overcome inconsistencies in the way names and addresses have been entered in their data sets.

Using magnetic tapes supplied by the user, Pure-File can isolate significant elements of a name and address according to user-defined needs. The service can, for example, identify related records to be grouped together for account profiles, consolidations or file purging.

In operation, Pure-File develops a logical match-key that is appended to each record on the file. This keyed file can then be processed by the user in any way he desires.

Alternatively, Computeristics can extend its service to standardize inconsistent parts of a user file or to purge duplicate records.

Pure-File can also recognize the elements of a personal or corporate name even if entered differently from record to record.

Cost of the service varies by application, the company said, from 1230 Avenue of the Americas, 10020.

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There's one thing we *don't* do to our latest tape. We don't sacrifice any of the push for perfection that has always characterized our previous tapes. BASF/2000 A.D., in other words, is quality added on—not a trade-off.

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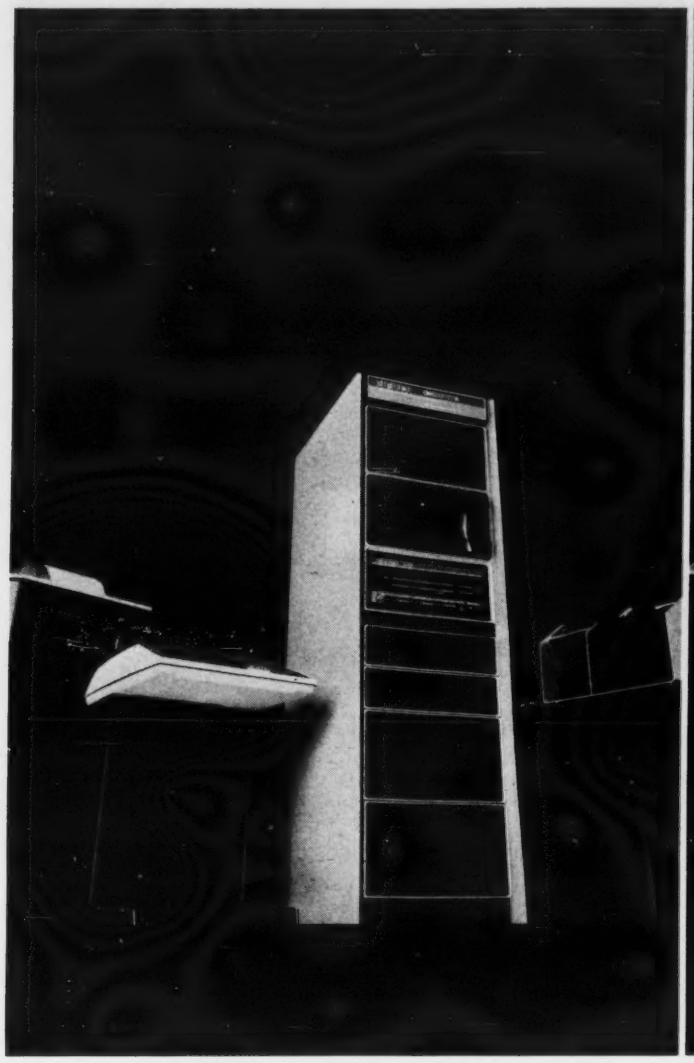

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PDP IS A REGISTERED TRADEMARK OF DIGITAL EQUIPMENT CORPORATION.

Software House Releases Sort For DEC PDP-8

MAYWOOD, Ill. – Users with no more than a 4K-word DEC PDP-8 with three Dectapes and a teletypewriter can gain one of the most important elements of commercial DP with the Sort3 sort package from Illinois Systems Co.

DEC does not have a generalized sort for the PDP-8 at this time, a spokesman noted, and although Decus, the users group, has one or two sort packages, they are too restrictive for commercial use. One, for example, sorts paper tape files.

Records to be sorted may be up to 128 words long but all records within a file must be the same length. As many as eight fields can be defined as sort keys within each record and these keys may be packed or unpacked alphanumeric Ascii characters, or positive or negative numeric values, the company said.

User Ranks Keys

The sort keys are ranked in significance by the user who may also call for either ascending or descending sequence on each sort key. The parameters, which are entered interactively through the teletypewriter, do not include reblocking or reformatting of the data records.

Other available parameters to control the sort process include designation of which of the TU55 Dectape units holds the input file and which will receive the sorted output, estimated number of records to be sorted and definition of the "end file" character used on the input file.

The $1,500 package is said to provide internal tape error and interrupt handling. It may be ordered from 1109 Nichols Lane, 60153.

'20' Simulated

LOS ANGELES – Programs originally written for a card-oriented IBM 360/20 can be run without recompilation on an IBM 3/10, through the Step simulation program from Group/3.

While recompilation is not required, "translation" of program decks from 80-column to 96-column card format is needed, a spokesman added.

Step operates on any IBM 3/10 with 12K or more core, a Multi-Function Card Unit (MFCU) and printer. It is free, but only to members of Group/3, at 6399 Wilshire Blvd., 90048.

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COMMUNICATIONS

Data Briefs

TTY Users Can Save $37/mo With Tycom KSR Terminal

POMPTON LAKES, N.J. – Users of the Teletype 1401 magnetic tape teletypewriter terminal can replace their TTY with a Selectric-type printer device from Tycom Systems Corp. and save up to $37/mo.

By replacing the TTY with a Tycom Model 37T KSR terminal the user will pay $93/mo for the terminal and about $112/mo for the Teletype magnetic tape unit for a monthly total of $205, according to Tycom. A Model 37 Teletype with tape unit would cost about $242/mo, the company said.

With the Tycom 37T, transmissions of 150 bit/sec to tape and 300 bit/sec from tape to CPU are possible, the company said. Tycom is a subsidiary of Terminal Equipment Corp. and is at 750 Hamburg Tpke., 07442.

CRT Replaces IBM 2265

MOUNT LAUREL, N.J. – Ultronic Systems Corp., a division of GTE Information Systems, has introduced the Videomaster 7100 stand-alone display terminal which is said to have more features and be less expensive than the IBM 2265.

The Ultronic CRT can transmit data at 9,600 bit/sec while the 2265 is limited to 2,400 bit/sec, a spokesman said. The 7100 can support two printers and can display up to 1,920 characters while the 2265 is limited to 960 characters, a spokesman said. Ultronics is at Central Ave. and East Park Drive, 08057.

FCC to Study MCI, WU Rates

WASHINGTON, D.C. – The FCC has ordered a hearing on the proposed Western Union rate reductions between St. Louis and Chicago. The WU proposal would lower rates to a level matching those of Microwave Communications Inc. (MCI), the specialized carrier now operating between the two cities.

The commission said it was ordering the hearing to determine competitive considerations underlying the WU proposal. The rate cuts would drop WU charges from 14% to 32% and have been called "predatory" by MCI.

Data 100 Replaces Modems

MINNEAPOLIS – Data 100 Corp. has a modem pair simulator (MPS) designed to replace standard data sets on short distance private lines. The MPS can operate with synchronous serial transmissions up to 10 miles from 2,400 to 9,600 bit/sec.

The MPS can be used with most Data 100 terminals and costs $4,930 with $15/mo for maintenance. Lease prices are $120/mo for a one-year contract. The firm is at 7725 Washington Ave., 55435.

ITT Adds CRT Controller

EAST RUTHERFORD, N.J. – ITT has added an expanded controller to its Alphascope CRT system that can handle up to 16 displays and 16 printers simultaneously. The 3116 controller can handle 32 "addressable devices," a spokesman said.

The 3116 can mean savings to Alphascope users compared with the use of two controllers with a maximum capacity of eight devices each. The eight-unit CRT controller costs $650/mo while the 3116 controller is priced at $665/mo, a spokesman said. Local and remote line adapters are available at $425 and $250.

The 3116 costs $24,000 and maintenance for the device is $65/mo. First deliveries are scheduled for late this year. The ITT Data Equipment and Systems Division is at East Union Ave., 07073.

Off-Line System

Cost Estimates Speeded via Polling Net

By Ronald A. Frank
Of the CW Staff

CINCINNATI – While on-line networks are usually the most efficient form of transmitting data, some firms find they can vastly improve on manual systems with an off-line operation.

The Mead Container Corp. supports its sales offices around the country by processing requests for custom containers on its 360/40 in Cincinnati. Previously, a request from a prospective customer was mailed to the DP center, keypunched onto cards and then entered into the CPU. The Model 40 would then prepare a cost estimate of the container and this would be mailed back to the sales office. The manual system often required five working days.

Recently Mead installed Model 37 KSR teletypewriters equipped with 4210 magnetic tape Dataspeed units. The TTYs enabled the central DP site to poll each sales office with a Bell automatic dial unit.

The polling operation is done at night in unattended mode to take advantage of off-time Wats phone rates, according to John Sherwood, division manager at Mead. The auto dial unit is connected to a Mitron MDRS-9 magnetic tape terminal which produces 9-track tapes for direct input to the 360.

As a sales office transmits its data to the DP center, a hard copy of the container specifications is printed on an Inktronic receive-only terminal. At the same time, the Mitron terminal converts the Ascii input from the remote Model 37 TTY and generates a computer-compatible tape.

When the remote office has completed its transmission, an operator transfers the mag tape reel to a tape transport for input to the Model 40. The computer processes the container specifications, estimates the cost and transfers the results on mag tape.

An operator then returns the processed tape reel to the Mitron terminal which converts the data into Ascii format and transmits the information back to the remote site.

Each remote TTY switches to automatic receive mode after completing a transmission to the central site. And Mead has had the teletypewriters modified to enable the magnetic tape units to be rewound, via a control characters transmitted from the central site.

"We now can rewind the remote tape from our DP center," Sherwood said. "We can send 180,000 characters, rewind the tape, print out the information at the remote TTY and continue to transmit indefinitely until the message is complete," he added.

"It takes about three hours to print out a tape once it is completely full at the remote site," Sherwood said. The average reply from the central site to a sales office "runs about 50,000 to 100,000 characters per night," he said. The 360/40 can process about 32 sales quote/minute using in-house developed software.

"We will probably run out of capacity with the system due to the slow print speed of the Model 37," Sherwood said. If Mead makes a change it will probably go to equipment with higher print speeds, he said. The print speed of the TTYs is 15 char./sec.

The Model 37 costs about $280 to $300/mo with the magnetic tape unit. Included in the monthly cost are the rewind modification and a speeded-up transmission rate from the standard 1,050 bit/sec to the present 1,200 bit/sec.

One significant savings in the Mead system is that a front end such as the IBM 270X type or an equivalent independent system is not required.

Eventually Mead may outgrow the capability of its TTY network. But for the present, it has enabled remote offices to provide customers with overnight sales quotes instead of waiting several days for the mail.

Data Managers Seen Hesitating On Use of Non-Carrier Devices

NEW YORK – There is little motivation for the communications manager to get into a "risk-taking venture" with non-carrier equipment unless he is convinced it can work efffectively in his communications system.

This is one of the conclusions of a study of communications users and vendors by Booz Allen & Hamilton, according to Harvey Poppel, vice-president of the firm's information services division.

No Hero Wish

"The communications manager has no motivation to become a hero," Poppel said. While the DP manager is used to taking on new projects and risks, the communications manager is more apprehensive, he said.

"There are usually few in management who fully understand the communications operation in a company," Poppel said. "The communications manager is more responsible for seeing that the facilities work when needed than he is in trying to save money by using independent equipment," Poppel noted.

Some of the hesitancy to innovate is based on the inability of the user to gain confidence in non-carrier equipment, Poppel believes. The user should deal only with vendors who fully understand his applications and requirements.

He should get enough information from the vendor "to go boldly before his management with a proper presentation" about the benefits of independent equipment, Poppel said. If necessary, the user should insist on a formal proposal from the vendor whenever that is the only way to get specific operating information, he added.

"The user should demand that the prospective supplier provide him with a representative who understands his application and industry. And he should ask the supplier to assist him in providing all necessary performance and cost benefit data about the independent equipment," Poppel continued.

Among the user benefits of dealing with independent vendors is a national orientation, Poppel said. The Bell System is organized on the local level according to the individual operating company, but an independent supplier often will assign a national account representative to the user, he said.

AT&T will provide a national representative only if the user is "a billion dollar company with $5 million in total communications expenses per year." And such users must have at least $1 million in long line expenses per year, he said.

"The telephone communications bill is not necessarily an unmanageable cost of doing business," Poppel said. The user should get enough data about the benefits of independent equipment to justify more confidence in these systems. And this in turn will lead to significant cost savings, he said.

Two-Way CATV Net With PDP-8 Will Serve 4,000 Subscribers

SOUTH ORANGE, N.J. – About 4,000 cable TV (CATV) viewers in this town will soon be able to transmit data to a DEC PDP-8, using special terminals attached to their television sets.

The minicomputer will store the address codes of the home terminals connected to the two-way CATV system and will control the operation of the system including the accumulation of data sent from the homes connected to the system.

The two-way system was developed by Video Information Systems Inc. and was first tested in New York in 1971. The terminal used to transmit data over the system "is capable with any bidirectional transmission system" and provides real-time communications between the subscriber and the centrally located minicomputer, a spokesman for Video Information Systems said.

Analog Systems

The output from the PDP-8 will be transferred through an interface which in turn will generate analog signals, a spokesman said. These signals will then be "mixed in with the TV spectrum," he said. The terminals in each home will receive their signals from the CATV line which normally carries the TV transmissions, he said.

The home terminals used in the system are pushbutton interactive devices that will allow the subscriber "to interact with the TV program" and participate in applications such as voting, program selection, shopping and educational courses, a spokesman said.

A typical terminal in the system will contain six pushbutton switches. When instructions are flashed on the TV screen, the subscriber can push any of five of the buttons to transmit his message. The sixth switch is used for clearing, changing entries or signaling the end of a message, the company said.

Initial installations in South Orange will begin late this year and the full system is expected to be operational in 1973, a spokesman said. Video Information has received a patent for the system and the "bidirectional communicator/convertor."

Asked about the potential impact of two-way CATV, a spokesman said, "We believe that in the future the CATV system will be a common carrier that will definitely be transmitting data as well as TV."

Video Information Systems Inc. is a subsidiary of Cable Information Systems Inc. and is at 230 Park Ave. in New York.

6 Terminals Share 1 Modem

SILVER SPRING, Md. – A fully automatic Six Channel Line Saving Device (LSD-6) which allows a single modem to service up to six collocated data terminals has been introduced by Rixon Electronics Inc.

The LSD-6 permits up to six terminals to time-share one modem on a "first come first serve" basis. It automatically assigns the modem to the terminal that first initiates a request-to-send signal.

Rixon is at 2120 Industrial Parkway, 20904.

Four Products Covered

Users of small systems made by IBM, DEC, Singer and other vendors can find hardware and software products in this issue.

In the Systems and Peripherals section, a new Singer disk drive for the company's System Ten is described. The unit features a dual fixed/removable disk for the small multiprogramming computer.

A line printer with interfaces for minis and small computers made by about a dozen companies was introduced by Macro Products Corp.

In the Software and Services section, a generalized sort for the DEC PDP-8 is featured. The package was introduced by Illinois Systems Co., which said a similar package is not available from DEC.

Also in the software area, a simulation program from Group/3 enables the IBM System 3 to run programs originally written for a 360/20.

Ferguson on System/3

Compatibility Must First Be Defined

By David E. Ferguson
Special to Computerworld

Compatibility seems to be a touchy word. The subject of my last column [CW, June 28] concerned upgrading from a System 3 which, inevitably, brought up the nasty subject of compatibility. And the nasty subject resulted in quite a few letters. Some nasty.

First of all, what am I talking about when I talk about compatibility?

Webster says: " . . . capable of cross-fertilizing freely or uniting vegetatively."

But that's not very fruitful. My own feeling is that compatibility, like pregnancy, is an all or nothing thing. One computer is either compatible with another or it isn't. There is no in between. One computer is compatible with another only when all of its programs will run, unchanged, on the other.

Now I find that the potential buyer of the System 3 is being told his machine is upward compatible with the IBM 370 series. That, unfortunately, is just not so.

It's not the 80-versus 96-column card problem nor the question of peripherals which are the real culprits. A truly serious area is the internal structures of the two

The Small Systems User

machines. The instructions are different. The index register structure is different. The S/3 uses zoned arithmetic instead of packed arithmetic.

When you put these facts together, they mean that an S/3 program won't run on a 370.

Does that mean that the IBM salesman is dealing in untruths. Not really. He's just placing some undefined restrictions on the two systems and calling the result compatibility.

Yet, obviously, you can't take a tray of cards off the S/3, load them into a 370 hopper and start. There are few, if any, machines like that. Further, manufacturers surround their machines with operating systems which have inherent differences in their job control language.

Immediately, therefore, I have to back down on the loose definition of compatibility. On further investigation, I have to back down even more. If I restrict what's in that tray of cards – limit it only to RPG II source statements – then it would be possible to load the program into the 370 and have it run. But that means severe limitations on the efficient use of the S/3.

Another, and equally important, area of incompatibility concerns software. Even if the RPG limitation is accepted, the RPG compilers are coded in machine language. Therefore, if the machines are different, the compilers are different.

Even if two compilers are written to a set of specifications by diligent, experienced programmers, there are still very likely to be major differences.

Of course, emulation is a distinct possibility. IBM has provided such a capability for the 1401 and could accomplish the same thing by building an S/3 emulator for the 370. At best, however, an emulator is merely a transitional state since it usually underutilizes the new computer system and slows down peripherals.

The conversion from the S/3 to the 370 and the concomitant problems which will arise also apply to other machines such as the new Burroughs B-1700.

It has been claimed that the 1700 is compatible with the S/3. But the B-1700 machine instructions are entirely different than the S/3. "Compatibility" here means that Burroughs is supplying an RPG II compiler.

I should stress one very important point. If you have an S/3 or you're contemplating the purchase of one and planning to go to the 370 in the future, incompatibility should not be alarming.

First of all, by going to a small machine now instead of a larger one, you've made an economic decision. Second, going to the 370 from the S/3 will probably be easier than from some other small machines.

As a matter of fact, the difficulties of going to the 370 are really not S/3 problems. They are inherent in converting from any other non-360 or non-370 system.

Third, as seen in the June 28 column, you will be able to stay with the S/3 for quite a while because of its enormous capabilities.

Conversion is not easy. But this does not mean you shouldn't be involved with an S/3 or a B-1700 or any other small business-oriented system. Incompatibility is simply a current fact of life. It means that the cost of using computers is not as low as we would like.

But, they are still machines which, if well used, can contribute to a company's profit.

Ferguson is president of Group/3.

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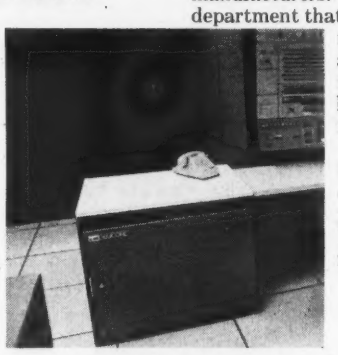

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Computers Get Friendly?

NORTH WILBRAHAM, Mass. – Two small computers are being used to place and process orders for some 300 Friendly Ice Cream shops in the East.

The company installed an IBM System 7 to call each store twice daily, and get order data from managers. A Touch-Tone telephone, or an attached "Touch-Tone Pad," is used to sign-on and to place orders, DP manager Larry Brodeur said.

The S/7 generates a paper tape for the Friendly S/3. Bills and packing orders are printed simultaneously, and orders are shipped the day after receipt, with bills accompanying shipments, the company said.

Bits & Pieces

Dual-Cartridge Tape Drive Competes With Paper Tape

MOUNTAIN VIEW, Calif. – Tri-Data's dual-cartridge magnetic tape drive system, the Cartrifile 20, is a more efficient alternative to high-speed paper tape systems, according to the manufacturer.

The system, which can read or write at up to 18 kbit/sec, uses Tri-Data's 1000 Series endless-loop single-tape cartridges.

Two 150-ft cartridges can store up to 6.5 Mbits. In single units, a Cartrifile 20 with read/write electronics, controller, interface, power supply and basic software costs $3,650. Tri-Data is at 800 Maude Ave., 94040.

Type System Works in Japanese

TOKYO – A photoprinting system that accommodates the 5,000 different characters used in the three common Japanese alphabets has been introduced by IBM Japan. The system uses a 370/155 to drive both digital television terminals for on-line copy editing, and a 2680 photocomposer which makes printing plates.

The TV terminals are used for page layout as well as editing, correcting and proofreading copy, IBM said. The system employs a 3330 disk drive for intermediate storage.

More information is available from IBM World Trade, New York, 10017.

Unit Interfaces Analog Systems

SAN DIEGO – An interface between computer systems and analog structural analysis systems, Spectral Dynamics' SD133 data terminal samples and digitizes up to eight voltages from a mechanical impedence system.

Sampling each channel takes about 100 μsec, and data is output when all eight channels have been scanned, or about every .8 msec. Data is output in Ascii in both serial for driving a TTY and in parallel for driving 8-level paper-tape punches.

Mechanical impedence systems are generally used for analyzing stresses in mechanical or structural subcomponents; joining these systems to computers allows simulation of entire structures. Spectral Dynamics is at P.O. Box 671, 92112.

Varian Adds to Paper Line

IRVINE, Calif. – Varian Data Machines has two new lines of paper supplies for its electrostatic, non-impact printers. The paper is available in three grades, including one for use in reproduction, and in roll and fanfold styles and widths of 8-1/2 in. and 15-1/2 in. Varian Data Machines is at 2722 Michelson Drive, 92664.

Many Small Gains

Engineers Report Tape Drives Improving

By a CW Staff Writer

Advances in tape drive technology in the past few years have been evolutionary rather than revolutionary, according to tape drive engineers, and the result of the evolution is simpler, more reliable tape drives.

A *Computerworld* survey of manufacturers – both mainframe and independent – revealed there have been few dramatic changes in drive design, but many small refinements that make modern drives both more efficient and more reliable than older products.

Single Capstan

In terms of reliability, the move to single capstan drives is perhaps the most important advance. A capstan is the roller which actually moves the tape. In the single system, a special surface on the capstan, typically rubber or neoprene, grips the backing of the tape; the tape is wrapped in a "u" around the capstan by vacuum columns and buffer pockets.

In older, multiple capstan systems tape is squeezed through two or more moving capstans. The sudden acceleration and squeezing when the moving rollers hit stationary tape can damage tape, according to Robert Deck, director of engineering at Telex.

In the single capstan system there is no squeezing at all, and the only objects the tape touches are the head and the tape cleaner.

An IBM spokesman pointed out the single capstan systems are mechanically simpler, less likely to go out of adjustment, and easier to maintain and build.

Another major trend is to replace mechanical components with electronics, which generally have a longer mean time between failure, and need less preventive maintenance, according to George Brown, manager of tape drive engineering at Potter Instrument Co.

IBM is replacing all wire and reed relays, for example, with solid-state devices, which also perform the switching to the channel and control unit. IBM is even using a solid-state reel tachometer which, IBM said, eliminates nearly 50% of mechanical column sensors and enhances tape velocity control.

Better Loading

Since tapes are sometimes damaged by an operator during loading and unloading, automatic threading, tape cartridges and straight line loading paths – all recent enhancements to tape drives – can improve reliability, according to a Honeywell engineering manager. He added that automatic hubs which center and lock the file reels in place are another improvement.

There are a number of smaller improvements the engineers cited. Honeywell pointed out that a slightly rounded tape head permits tape to adhere more closely to the head at higher speeds, eliminating flutter and lessening dropouts.

Other improvements included closer head gap tolerances, special head coatings that reduce wear, and the use of air bearings to lengthen tape life. A Univac spokesman said his company's addition of a simple, small buffer loop in the tape path before the main vacuum column resulted in faster response time and better start/stop times.

Higher Performance

Increased reliability is necessary for the recent, major performance improvements – the switch to phase encoding, higher-bit density and higher tape speeds – and in turn, at least one of the improvements, phase encoding, provides higher reliability.

Phase encoding, a technique that is actually 25 years old, increases data reliability by being more tolerant of tape skewing, said Daniel R. O'Neill, manager of tape engineering at Ampex.

Phase-encoded tapes also include timing tracks which allow complete recovery from as many as six consecutive single-track errors in a record, according to O'Neill.

NRZI does not have these self-clocking tracks, and is more susceptible to noise than phase encoding, O'Neill said. In addition, error-recovery techniques are more difficult and expensive to implement with NRZI, he noted.

The engineers agreed that increased reliability of tape drives has ended many worries for users in their move to high performance, 3,200 bit/in. and 250 in./sec drives.

Model 42 Removable/Fixed Disk Added to Singer System Ten Line

SAN LEANDRO, Calif. – Singer has introduced, a dual fixed/removable disk drive for its small, multiprogramming System Ten computer. The Model 42 is intended to provide the flexibility of two disk drives at less cost than two of Singer's Model 40 removable pack drives.

The resident and removable packs of the Model 42 provide a total 8M-character capacity, and have a 73 msec average access time. Data transfer rate is 229,000 char./sec, and record length is 100 characters.

The older Model 40 removable pack system, at $12,500, has a 10M-character capacity.

The Model 42 sells for $15,500, and rents for $440/mo on a one-year lease.

Singer said the split-pack design allows both backup storage and on-line access storage in one unit. The resident pack is used for active manipulation of data, which may then be duplicated onto the removable pack and stored for backup.

The System Ten is designed primarily for small businesses, and offers hardware multiprogramming through a time-slicing technique that serves up to 20 partitions.

The Model 42 is available for delivery in 90 days. Three- and five-year leases are offered. Singer's Business Machines Division is at 2350 Washington Ave., 94577.

Singer Model 42

Minis, Mainframes Get Plug-Compatible Printers, Speeds to 1,800 Line/Min

GARDENA, Calif. – Macro Products Corp. has a line of plug-compatible line printers for a range of minis and small general-purpose computers. Interfaces are available for Digital Equipment Corp., Data General, Varian, Hewlett-Packard, Honeywell, Interdata and other minis, as well as IBM, Honeywell, RCA, Univac, Burroughs and XDS computers.

1,800 Line/Min

The printers range from 245 line/min to 1,800 line/min, and have column widths from 80 to 136. Several character sets are also offered. Prices start at $10,750 for 80-col printers, and $13,125 for 132-col units.

The printers all use Data Products' friction-free hammer mechanism. Availability is 60 to 120 days. Macro Products is at 14403 Crenshaw Blvd., 90249.

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What is it?

When does a large calculator become a minicomputer? And when does a mini become a "general purpose" computer? We'll try to define the mini, and we'll discuss some of the pros and cons of word lengths, byte-oriented machines, micro-programming, core and solid state memories.

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Computerworld's August 30th Minicomputer Supplement will cover the field – and it will be read by people who use the Mini:

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Network Keeps Tight Rein on Crime

73 Law Enforcement Agencies All Under One 'Roof'

By William D. McDowell
Special to Computerworld

BERGEN COUNTY, N.J. – A computer-based police information network now ties 73 separate law enforcement agencies together in an effective county-wide communications project. The Regional Enforcement Information Network (Rein) is operated by the county, using IBM 2740 communications terminals in municipal police departments, linked to an IBM 360/40.

Within Bergen County, each muncipal police department, plus the sheriff's department and the county prosecutor's office, maintained its own criminal file or arrests made and warrants issued. But, because most of these agencies deal with offenders before legal disposition of charges, they had no set procedures for updating files.

Furthermore, persons arrested in one municipality might be wanted on another charge in a neighboring municipality. Without a quick means of checking, an offender might be released instead of being held.

What was needed was a central data bank upon which each police department could draw for up-to-date information on warrants outstanding, arrest records, indictments, narcotics viclations and information concerning stolen property.

The first step in creating the network was to gather all warrant and arrest information from each municipal and county court into a single data bank. Arrest records were to include county, state and federal offenses as well as offenses handled within municipal courts.

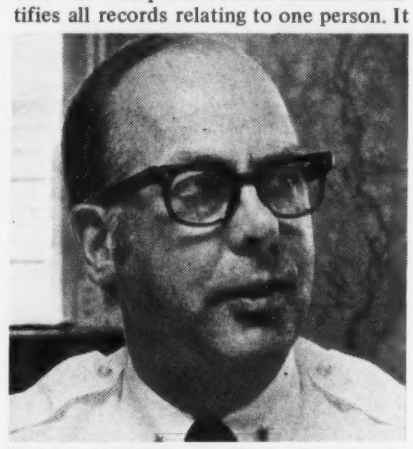
Access to information was to be restricted to participating law enforcement agencies.

Arrest, Warrant Forms

Two forms were designed to assist in collecting the data for the system, one for arrests and one for warrants outstanding.

To enter warrant or arrest information, the name or alias of the person registered plus one numeric identifier, such as date of birth, must be included. Other information entered includes address, identifying characteristics, birthplace, occupation and whether the person is armed, dangerous, mentally deficient, suicidal or would be expected to resist arrest.

Warrant information would also include the agency issuing the warrant, warrant number, the state statute under which it was entered and a computer control number. The computer control number identifies all records relating to one person. It is assigned by the computer when the record is initially entered into the system.



Sheldon McWilliams, chief of police in Saddle River, N.J., is chairman of the study committee on data processing set up by the Bergen County Police Chiefs' Association to implement Rein.

By including the computer control number when a warrant is entered or updated, the operator will not need to search the file to identify the warrant.

Terminals are placed in key towns across the county, usually in the center of a cluster of towns using a single police radio frequency.

The field terminals are presently used for inquiry only. Each terminal is covered seven days a week, 24 hours a day.

Inquiries are made on a name basis. For example, a patrol car in Ramsey may stop an automobile for a traffic violation. In checking the operator's license, the officer on patrol calls in the driver's name and other information to his own police station by radio.

Under Rein, the radio operator-dispatcher in the local police station gives the name of the driver to the terminal operator in his district, either in person or by phone. The terminal operator types the name into the computer, and the computer responds with up to five compacted names, similar to the name given.

A "W" next to any of these names indicates that a warrant is out for this person somewhere in the county.

Second Inquiry

If a "W" appears on the printout, the operator makes a second inquiry of the computer, and receives warrant information, including a description of the person, date of birth and other numerical information, bail, arrest record, arresting agency, whether the person might be armed, mentally deficient, suicidal or dangerous.

If numerical information and description check out with the driver of the detained auto, the officer on patrol is informed by radio and the driver is held for further questioning. All of this takes place within about 95 seconds.

Next to the Rein terminal in the sheriff's office is a teletypewriter connection to the State Police Information Center in Trenton. The state network is in turn tied in with the National Crime Information Center in Washington.

McDowell is on the Board of Chosen Freeholders, Bergen County, N.J.

Air Force Extends Computer Use To Depot Maintenance, Testing

By John Pandzik
Special to Computerworld

WASHINGTON, D.C. – There is nothing new about the use of computers in the Air Force. For years, Air Force managers used them to process, collect and store data for management use. Today the computer is no longer just a management tool – it is an ideal instrument to drive industrial equipment and test devices.

The computer has revolutionized testing of electronic systems and system components at all Air Force Logistics Command repair depots. Major application of computer-driven electronic test equipment includes the testing of aircraft avionics systems, Minuteman missile components, central air data computer systems and fire control systems.

Camera components, guidance and weapon release systems, communication systems, navigation systems and inertial guidance systems are also computer tested.

This success in the automatic testing of electronic systems has enabled the automation of other maintenance tasks including development and acquisition of computer-controlled automated equipment to do depot-level testing of aircraft jet engines, auxiliary power jet engines, aircraft starter engines and other jet engine accessories and parts.

Eight Test Cells

At the Oklahoma City Air Materiel Area, a computer-controlled system physically operates and controls the entire test procedure in eight jet engine test cells simultaneously and independently. The overall concept can be best understood by envisioning the test cell complex itself, with all eight of the test cells (with engines installed) connected through an operator's console to a central computer.

The computer then reads all necessary analog parameters on the engine (temperatures, pressures, speed, etc.), analyzes these results and exerts physical control over each engine so as to completely check out the operation and performance of each engine according to standard Air Force requirements.

This system is constantly alert for and prepared to handle various emergency situations. These emergency controls prevent internal damage to engines because of malfunctions.

The computer's capability for immediate response to shut down an engine when a failure or malfunction occurs is a bonus safety feature not only to the engine but also to men and equipment near the test.

An automatic test system for jet engine accessories is now operating at the Oklahoma City repair facility. This computer-controlled automatic test system includes a data accumulator, peripherals and other equipment for the testing of J-79 main fuel controls. The system can be interfaced with up to 40 test stands and expansion to other jet engine fuel controls is planned.

The reduced operator hours required by the computer-controlled systems over the manually operated test consoles have resulted in substantial man-hour savings. Other benefits include increased productivity, reduction in the rejection rate, less space requirements and reductions in the number of fuel control test stands. The greatest benefit is derived from the consistency of performance of jet engine fuel controls.

Another major use of computers in the Air Force Logistics Command is to "drive" production equipment.

The airframe structure of modern aircraft consists of thousands of different parts. Some of these parts such as brackets, fittings and hinges require replacement because of wear or breakage.

The original source for these parts "dries up" as the aircraft goes out of production, but Air Force aircraft remain in the inventory long after the last one leaves the production line.

"Sparing" these types of parts is impractical because of the many different items involved and the unpredictable usage rate. To solve this problem, computer-controlled numerical control metal working machines are used to fabricate these parts as needed. These machines can make new parts from raw stock in minutes.

Obviously, the computer is no longer just a management tool. Much research, time and money were involved in making it an industrial tool. With this expanded utilization of the computer, the Air Force Logistics Command has significantly reduced the cost of depot maintenance and testing programs for electronic systems, jet engines and the fabrication of aircraft parts.

Over the hill. The diesel powered tractor and the air-ride trailer are just a few years old. Both pieces of equipment will give several more years of satisfactory service hauling household goods.

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Test Center Provides Health Profile

NEW YORK – The American Health Corp., in cooperation with The American Health Foundation, has established The Health Maintenance Center, which will use computerized data from automated tests to provide an individual's health profile within one hour.

The facility's health-testing techniques can be administered to as many as 70 people a day. All testing is done at the center in one session for a fee ranging from $70 to $85 per individual.

The Health Maintenance Center contains complete on-site facilities for clinical laboratory and physical testing, as well as computerized data bank storage of individual health histories.

The center is owned by The American Health Corporation, a private venture whose participants are Control Data Corp., Eastman Kodak Co., The Northwestern Mutual Life Insurance Co., Norton Simon Inc., Time Inc. and Bradford Computer & Systems, Inc.

The center's medical activities will be operated by The American Health Foundation under the direction of a medical advisory board.

The core activity of the center is Automated Multiphasic Health Testing, which enables a physician to distinguish quickly between normal and abnormal health patterns in an individual.

The system involves technicians, automated testing equipment and a computer to accumulate health data from more than 50 tests, such as preglaucoma tonometry and breast X-ray. Test data is fed into the on-line computer which, for males, prints out a health profile within one hour from the start of testing. Fifteen minutes more are required for women.

If indicated by computer analysis, the system provides for added tests or for immediate retests of abnormal results. The procedure is concluded with a final interview and physical examination by a physician, after which results are sent either to the individual's sponsoring medical department or to his own physician.

The center will test individuals referred to it primarily by industry, unions, hospitals and physicians.

Health statistics gathered from the center's examinations will be used by The American Health Foundation in its research and educational programs. All individual health records, however, are kept confidential, spokesmen emphasized.

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computer industry

August 2, 1972 — a Computerworld news section about the nation's fastest growing industry

CI Notes

Data 100 Signs Pact

MINNEAPOLIS – Data 100 Corp. has signed a preliminary agreement for the sale of up to $30 million of computer terminals over a three-year period to Randolph Computer Corp.

Final agreement is subject to approval by both firms; completion by Data 100 of pending equity financing is one of the conditions to be met.

Under the proposed agreement, Randolph Computer will lease the terminals to customers provided by Data 100, which will, for additional compensation, service and remarket the equipment. The two companies propose to share lease revenue proceeds subsequent to the recovery by Randolph Computer of its purchase price and specified fees.

Data 100 will issue warrants to purchase up to 130,000 common shares of Data 100 Corp., the exercise of which will depend upon the amount of purchases of terminals by Randolph Computer.

DCC Cuts Mini Prices

FAIRFIELD, N.J. – Digital Computer Controls (DCC) has reduced prices on its D-112 12-bit minicomputer series by as much as $2,060 on the D-112H/SC. The price reductions reflect a minimum decrease of 15% across the product line, the firm said. Reductions were also made on options and peripherals.

Groups OK Microfiche Guidelines

WASHINGTON, D.C. – Five organizations which determine production standards for microfiche from source documents (but not COM) have agreed on common guidelines for uniformity.

Committees representing the Department of Defense, the American National Standards Institute, the Committee on Scientific and Technical Information and the International Organization for Standardization have drafted new sets of standards which await formal approval by each organization.

Microline Offers Turnkey System

SANTA ANA, Calif. – Microline Corp. has introduced the Manufacturers Management Control System (MMCS) which collects and automatically processes data for directing manufacturing operations. The system enables the user to analyze, plan and control his operations.

Supershorts

National Cash Register has equipped seven of its 40 data centers with COM processing facilities.

– – –

Manufacturers' Lease Plans, Inc. has agreed to purchase up to $3 million of Courier Terminal Systems, Inc.'s IBM-compatible CRT terminals during the balance of 1972.

– – –

The ITT Family Security Sales Corp., has obtained rights to market and promote Car/Puter International Corp.'s service. Car/Puter offers an automobile pricing information service to assist consumers planning to buy a new car.

– – –

Data Systems, a Martin Marietta Corp. service business has attained division status.

– – –

The Plessey Co., Ltd. has become an "alternate source" of production of National Semiconductor Corp.'s MM5260 1K-bit, MOS RAM integrated circuit.

Plessey will market the circuit through Plessey Memories.

DP Industry Specified

Hart Bill Would Restructure Monopolies

By E. Drake Lundell Jr.
Of the CW Staff

WASHINGTON, D.C. – The voice of Sen. Philip Hart (D-Mich.) has been added to the growing congressional delegation calling for stronger antitrust laws – aimed specifically at the computer industry among others.

Hart, who said last week he "had given up hope" that the present antitrust laws would be used to break up monopolies, introduced new legislation that would force such a break up.

Set Up Commission

The bill would establish a commission on industrial reorganization with the power to propose ways of breaking up seven target industries into more competitive units.

A new court for the purpose of industrial reorganization would also be established with the power to enforce the rulings of the commission, under the Hart plan.

In addition to the computer industry, the bill would call for the reorganization of the chemical and drug, communications equipment, electrical machinery, energy, iron and steel, motor vehicle and nonferrous metals industries.

There is little chance that such legislation would be enacted this year, Hart admitted, and probably not much chance for enactment in the near future.

Public Hearings

But he said the Senate Antitrust and Monopoly Subcommittee, which he heads, will hold hearings on the bill later this session and will give persons in the affected industries a chance to comment.

Several industry sources see the hearings as a good chance to reveal the problems of competition in the computer industry and to press their view on the inadequacy of the present antitrust laws, they said last week.

"This bill," Hart said, "offers an alternative to government regulation and control. It's a difficult choice. It involves changing the life styles of many of our largest corporations, even to the restructuring of whole industries.

"It involves positive government action, not to control but to restore competition and freedom of enterprise in the economy," he added.

The new commission, as outlined in the bill, would study companies and industries for signs of concentration, such as lack of competition or a dominance by one or a few corporations of the sales in the industry, a category that observers said would include the computer industry if IBM does in fact control 60% to 70% of the industry as often charged.

Hart did not disclose the types of reorganization that would be required under the bill, indicating that would be decided by the commission on a case-by-case basis. It might not necessarily mean the breakup of the largest companies in an industry, he indicated, as long as their concentration of power could be reduced by other means.

Both the commission and the court to enforce its orders would have a life of 15 years, Hart's proposal stated.

Hart said such a sustained attack over a number of years should be more successful than the present antitrust laws to break up existing concentrated industries.

"While I still believe the antitrust laws could go a long way toward eliminating much of the concentrated economic power, I have given up hope that – absent a new congressional mandate – any attorney general will bring the necessary cases to undo the concentration which has already taken place," he stated.

Hart joins with other senators, such as Vance Hartke (D-Ind.), and representatives, such as Emmanuel Cellers (D-N.Y.), which have been pushing for a revision of the antitrust statutes during this session of Congress.

Adapso Files Suit to Block IBM Antitrust Case Secrecy

NEW YORK – The Association of Data Processing Service Organizations (Adapso) has filed suit in Federal District Court here seeking to compel the attorney general and IBM to terminate what Adapso calls the "unlawful suppression of evidence" in the government's antitrust suit against IBM.

In filing the petition, Adapso charged that secrecy in the case violates its rights to free speech, free press and access to useful information under the First and Fifth Amendments of the U.S. Constitution and other statutes and regulations.

Public Denied Rights

"Government antitrust litigations are litigations involving the public interest, in which the public has a right to know," stated Bernard Goldstein, Adapso president. "The First and Fifth Amendments to the U.S. Constitution and statutory and other legal precedents make it very clear that Adapso, the free press of the U.S. and the public are being denied their rights, and that censorship and suppression have taken the place of the open information which is our constitutional right.

"Adapso's limited glimpse into what is going on in the IBM litigation indicates that the Department of Justice's staff is woefully undermanned and underfinanced; that as a result it cannot do much more than respond to IBM's demands. Serious delay and prejudice are threatened and may have already taken place.

"We are not complaining against IBM litigation tactics," Goldstein continued. "But proper operation of the American adversary system of justice requires that there be equally matched adversaries and at the moment it looks as though IBM is 'creaming' our government."

European DP Called Varied

NEWTONVILLE, Mass. – The $11 billion West European computer market – representing 23% of the total value of mainframes installed worldwide – is far less homogeneous than might be expected, according to a report released by International Data Corp., a computer industry research firm here.

Using a measure of total computer value installed per 1971 GNP dollar, the report showed that the UK is the most highly computerized, with Germany and the Benelux countries in second place.

Germany a Leader

But in pure dollars of computers installed, IDC estimated that Germany has the largest market, followed by the UK and France. By comparison, Italy is only beginning to emerge as a major computer-using power, the report said.

Independent peripheral suppliers have had varying degrees of success, but in general are strongest in Germany. The German users surveyed were more open to using independent equipment than were their counterparts in France, the UK and Italy, the report said.

It pointed out that the current recessionary trends in Germany will undoubtedly strengthen this receptiveness.

Transmission Facilities

A major factor influencing the rate of development among the various countries is the state of data transmission facilities, controlled by each national post office, IDC said.

Although communications-based systems are becoming increasingly popular in the U.S., the study indicated that of the major European computer-using nations, only the UK had sufficiently enhanced its communications system to begin to support this trend.

The greatest source of untapped potential, the report concluded, is the USSR and her East European satellites.

Using the same measure of computer value installed relative to GNP, IDC estimated Russia's utilization rate at 10% that of the U.S., compared to the UK's 70%.

General Automation Adds Three Systems For Machine Control

ANAHEIM, Calif. – General Automation has introduced three new machines to the growing machine control market.

The Adapt-A-Path line covers a wide variety of metalworking machine functions and can in many cases double the output of machine tools, General Automation claimed.

The Adapt-A-Path/point-to-point system's prices start at $6,000 per system. The point-to-point family provides automatic positioning of machine tools in two axes, and is plug compatible with existing 2-axis systems. The system controls both stepper motor and closed-loop servo systems. Its specifications include resolution of .0001 in., at feed rates of up to 600 in./min for stored pattern work.

The Adapt-A-Path/Continuous Path system uses a "unique" path generation feature and can control from three to 6-axis machines, the firm said.

A basic 2-axis continuous path system costs $9,975, and is expandable to handle automatic cutter radius compensation, part program edit, parametric programming and many other features of a computerized control system.

The third system, Adapt-A-Path/Three Dimensional Contouring is claimed by General Automation to be the only one of its type in use today. At a purchase price of $30,000, the system provides three-dimensional hyperbolic interpolation in three axes. Developed initially for a free-form moldmaking market need, the system accepts cross-sectional informaton as input data.

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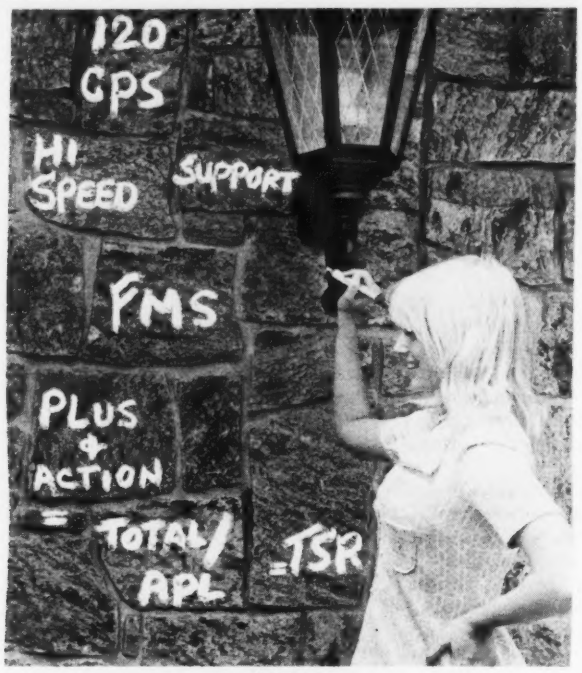

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Nedpac Joins List of West Coast Shows

SAN FRANCISCO – A new computer-related trade show has been added to the already crowded West Coast calendar this fall.

The National Electronics & Data Processing Annual Conference, scheduled for Nov. 7-9 here, falls between the already scheduled Wescon (Sept. 19-21) and the Fall Joint Computer Conference (Dec. 5-7) in Anaheim.

The new meeting, dubbed Nedpac, is being put on by the David Rogers Corp., headed by Donald R. Cruzen, director of exhibits for the joint computer conferences the past five years.

The show is designed primarily as a selling vehicle, he said.

"The other shows and conventions I have directed," Cruzen said, "were sponsored by non-profit associations; invariably, these events have suffered because of all the restraints imposed by non-profit organizations, not only by IRS regulations but also by the groups' own constitutions and bylaws.

"Nedpac is free of all such limitations. This means there is now a show which will provide a truly unique marketing opportunity, in the best possible selling environment."

The show is designed, Cruzen claimed, for both the OEM side of the computer industry and for the end-user side, as well as for components manufacturers and others.

Nedpac will offer exhibitors a full package of services including drayage, unpacking, booth erection, booth dismantling and repacking, he said.

Orders & Installations

The Iowa-Illinois Gas & Electric Co. has ordered several Idigraf display terminals from Information Displays, Inc. for use in a utilities control and distribution system.

The Washington National Insurance Co., Evanston, Ill., and The Mutual Life Insurance Co. of New York have ordered Western Operations Inc.'s Portfolio Management System.

Western Electric Co., Winston-Salem, N.C., has ordered an interactive computer graphics system from Systems Engineering Laboratories, Inc. The system will be used to generate Safeguard Maintenance Data System data frames.

Three Baltimore area firms have ordered or installed NCR Century 50 systems. The Multiple Listing Service of Greater Baltimore, Inc. uses its system for inventory control, sales statistics and general accounting.

Donald E. Grempler Realty, Inc. will install a Century 50 for inventory, to compute closing costs quotations and sales commissions and general accounting.

The Baltimore & Annapolis Railroad Co. has ordered a 50 for billing and accounting.

Ancom Systems has installed an automated general ledger system at Cooper Data Systems, New Orleans.

Mexico's Department of Communications and Transport has ordered a Control Data Cyber 70 Model 72 to handle payrolls, inventories, general accounting and other business applications. It will also process data from communication and transportation studies.

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Japanese Use of On-Line Units to Jump Sharply by '76—May Reach 1,200 Users

Dempa Publications, Japan

TOKYO – In Japan, there are currently 193 on-line systems, comprising 313 CPUs, used by 160 different users, according to the Japanese Computer Usage Development Institute.

The major industrial categories using on-line systems extensively are: banking, power supply, textile, transportation, electric machinery and shipping equipment manufacturers.

In the Japanese banking industry, deposits and money order processing are the two major job areas using on-line systems. The manufacturing industry uses on-line systems in such areas as sales control, inventory control and production control.

Shipping management and passenger reservations are the two major areas of application for on-line systems in the transportation industry.

The total value of the on-line systems presently in use is $815 million. This accounts for 19.6% of the total value of the general-purpose computers presently installed ($2.9 billion), while the total number of computers being used for on-line systems accounts for 3.3% of that total.

The value of CPUs and peripherals incorporated in on-line systems installed in computer centers is $567 million.

Banks and travel agencies are presently most active in selling on-line service to outside users.

On an average, the first on-line system is introduced 58.2 months after the introduction of the first computer system. Once an on-line system has been introduced, however, a rapid expansion of the system usually takes place. The average lapse of time for the installation of additional CPUs to on-line systems is 20 months, the study showed.

According to a survey made by the Japan Electronic Industry Development Association 52 out of the 96 on-line using companies (54.2% of the total) plan to replace their present systems with more sophisticated systems, and 43 of the companies (44.8%) plan to add new on-line systems by the end of 1975.

At the same time, of the 639 companies surveyed who do not have on-line systems at present, 198 (31%) plan to install on-line systems by the end of 1975.

Of the 293 companies planning on-line system installations or replacements, 90 (45.5%) intend to use their systems not only for their own company.

Of these, 31 plan to offer on-line services to other manufacturers, 36 plan to use the systems to tie manufacturers with distributors and 13 intend to provide wholesalers and retailers with their on-line communication systems.

The other 10 companies plan to offer on-line service to other firms on a contract basis, which at present is the most typical on-line service offered by on-line principals.

The Japan Computer Utilization Development Institute predicts that by 1976 the total number of on-line system users will be between 1,000 and 1,200 or about 5% of all users of computer systems.

According to a similar survey made by the Japan Electronic Industry Development Association, by 1976 the CPUs used for on-line systems will total between 1,800 and 2,300 units, or about 5.3% of all the computer installations at that time. The value of on-line systems in use by 1976 is estimated at $8.4 billion.

This will account for a 55.3% share of the estimated total value of general-purpose computers ($15.1 billion) by 1976.

The value of CPUs and peripherals incorporated with on-line systems installed in computer centers is estimated at $5.7 billion by 1976, and terminal and other related equipment installed outside of the centers is estimated at $265 million.

Mohawk Unveils Cassette Drive

KING OF PRUSSIA, Pa. – Mohawk Data Sciences Corp. has announced a cassette transport; the Model 2021 Cartridge Tape Drive. It is available as a desktop console or as a panel-mounted assembly and uses the 3M Co. DC300A Magnetic Tape Cartridge, which contains two reels and 300 ft. of 1/4-in. tape, and requires only a single drive motor.

The 2021 has a dual-gap read-while-write head and is available in 1-, 2- or 4-channel configurations. It can record at 800 to 1,600 bit/in. with read, write and backspace speeds of 30 in./sec. Rewind and fast forward search speeds are 90 in./sec. The data transfer rate (per channel) is up to 48 kbit/sec. Tape acceleration or deceleration time is 25 msec at 30 in./sec. The interface is TTL compatible.

Prices range from $200 for the mechanism only to $500 for the complete unit with electronics. The firm is at 781 Third Ave., 19406.

Temporary Injunction Restrains Raytheon From Software Sales

DALLAS – A state court judge here issued a temporary injunction restraining Raytheon Co. from using software developed by National Data Communications, Inc. (NDC) and from selling its own Pulse hospital communications system, according to National Data.

The ruling is in response to a suit filed by NDC seeking $10.9 million in damages and $35 million in punitive damages against Raytheon. Raytheon declined comment.

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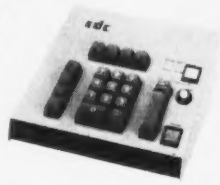

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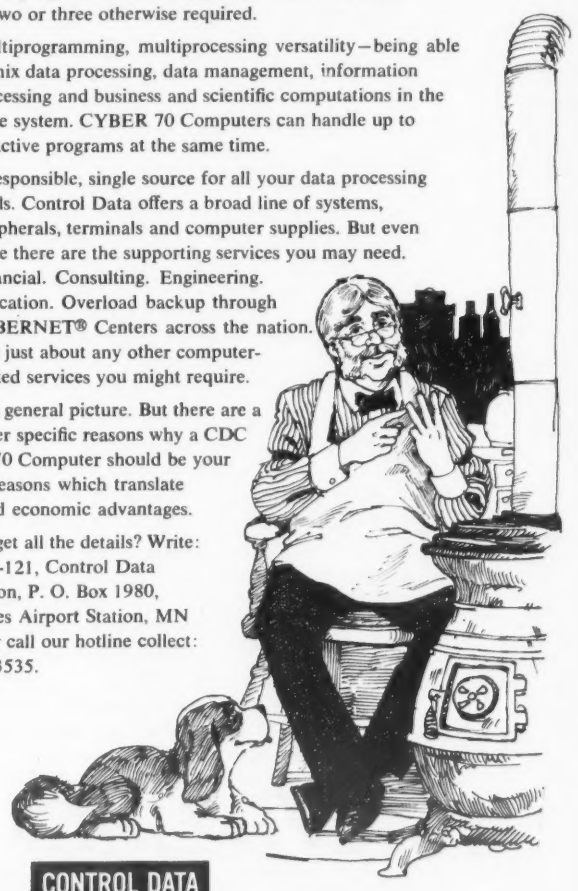

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Out from under . . . **Seaco Computer Display's** plan of arrangement proposed to creditors under Chapter XI proceedings has been accepted by creditors and approved by the court. Under the plan, the company will be relieved of about $3.5 million of existing debt.

$$$

Interdata has prepaid in full a $600,000 subordinated note, due Aug. 28, 1973, to Tracor. Included in the transaction is the repurchase by Interdata of warrants to purchase 81,000 shares of its common stock.

$$$

A 29% rise in revenues for the first half at **Computer Dynamics**, a California based service bureau, was eclipsed by a 50% increase in operating expenses, due largely to the acquisition of Accudata and Pacific Data Services. But May and June showed a $13,000 profit.

$$$

Applied Logic continues to reduce its losses. In the third quarter ended June 30, losses were $25,500, or 1 cent a share, on revenues of $763,976. In the year-ago period, losses were $320,809.

$$$

A larger portion of **Community Computer's** revenues has been coming from time-sharing, as opposed to hardware sales, and the firm recently reported its first profitable six-month period. Time-sharing accounted for about 90% of revenues in the year ended May 31, up from 59% in fiscal 1971.

Loss in Six Months

NCR Quarter Weaker, But Profitable

NEW YORK – NCR's second quarter earnings picture is brighter than in the previous two quarters, but bleaker than a year ago, and the six-month report shows a loss of $4 million.

After posting losses for the last quarter of 1971 and first quarter this year, NCR reported earnings of $2.8 million, or 12 cents a share, on revenues of $384.5 million for the period ended June 30. This compares with $7 million or 31 cents a share on revenues of $376.4 million during the second quarter of last year.

Incoming Orders Strong

"Incoming business for the year to date has been strong, with a surge of orders received last month," according to Chairman Robert S. Oelman. In June, both the international and domestic marketing divisions set records for incoming orders. Overseas computer orders alone totaled $28 million in sales, noted Oelman.

But, he added, since "orders include rental equipment and new products not yet in volume delivery, not all of this business is immediately convertible into revenues and earnings."

The four-month strike last fall and winter at Dayton continued to impact second-quarter results, although to a lesser extent, and NCR's UK subsidiary is still reporting "abnormally low" earnings after the decimalization program, Oelman explained.

Manufacturing start-up costs associated with new products also reduced second-quarter earnings, he said.

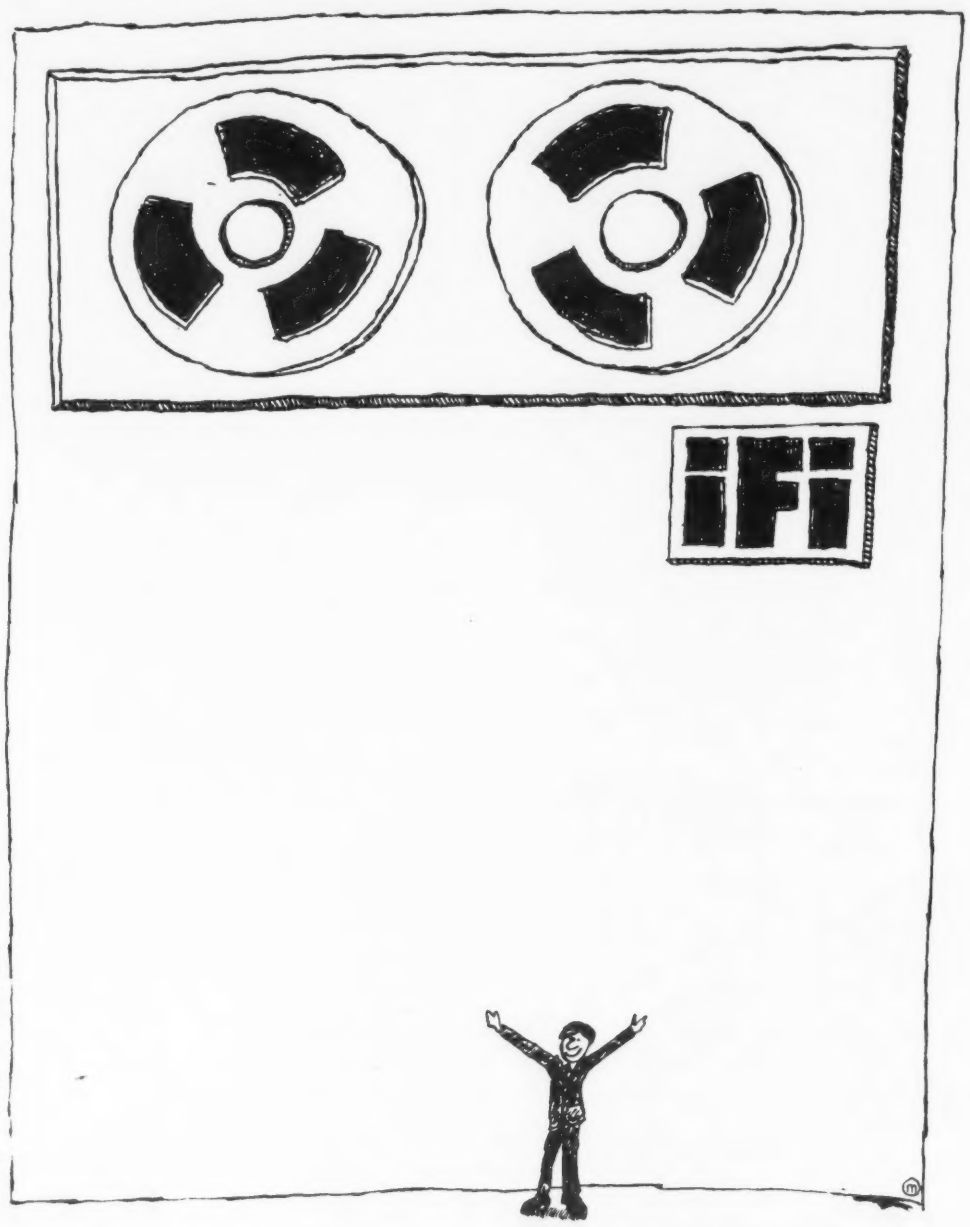
Loss for Six Months

Hindered by the first-quarter loss of $6.8 million, in the six months the company had a loss of $4 million on revenues of $711.3 million compared with earnings of $12.5 million on revenues of $711 million for the first six months of last year.

NCR is currently realigning some of its manufacturing operations to improve efficiency and also is carrying out other changes designed to streamline operations and reduce costs, Oelman said.

"The improved results experienced in the second quarter are expected to continue as the year progresses and the year as a whole should be profitable," Oelman said.

You don't have room for our computer. But our computer has room for you.



One of the first things you learn about running a business is to keep the overhead down. And for most people, to have an IBM 360/65 on the premises makes as much sense as having your mail boy picked up every day in a Rolls Royce.

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And while we're out to help you cut costs, we don't want you to cut corners. So we provide you with an experienced staff of data processing professionals, who in turn, provide you with the latest systems and applications available. Whether it be to support your system, or give you a new one from scratch.

And since we know how complicated your life can get running a business, there's one other point we'd like you to know about. Our 360/65 allows access for RJE users. So that you can take advantage of our service from the convenience of your own office.

But if you do come over to see us, you'll find we're not all machines. We have some nice, comfortable office space available for you to work in, while our computer is working for you.

You see, even if you don't want to live with a 360/65, we still want you to feel at home with one.

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Sperry Rand Marks New Earnings High In First Quarter

NEW YORK – Confirming earlier predictions of profitability [CW, July 5] Sperry Rand reported record first-quarter earnings, a 35.3% rise on a revenue boost of 20.6% over the June quarter last year.

Aided by a sharp rebound in the computer business, in which orders rose more than 25% from the same period a year ago, overall earnings for the period ended June 30 totaled $17.9 million, or 52 cents a share, up from a restated $13.2 million, or 38 cents a share a year ago. Revenues climbed to $499.7 million, up from $414.2 million in the same 1971 quarter.

"During the June quarter we have seen encouraging demand for large-scale Univac 1100 Series computer systems, and we began delivering the Univac 1110 computer systems which are the largest and most advanced of all Sperry Univac systems," Chairman J. Paul Lyet observed. The machinery products area also showed considerable gains over the 1971 performance.

Xerox Sets Records For Quarter, Half

STAMFORD, Conn. – Xerox Corp. has turned in record earnings and revenues for both the second quarter and six months with little help from its computer operations.

Earnings for the second quarter climbed 19% to $63.1 million, or 80 cents a share from $52.9 million, or 67 cents a share. Revenue rose 23% to $611.3 million from $498.6 million a year earlier.

Earnings in the first half reached $120.5 million, or $1.53 a share, an 18% climb over the 1971 period's $102.4 million, or $1.30 a share. Revenue rose 22% to $1.16 billion from $949 million.

Quarterly revenue of the unprofitable computer operation was "modestly higher" than a year ago, Xerox said.

COMMUNICATION LINES WANTED

Our company requires extensive communication line tie-in to all locations in the United States with our Oak Brook Information Center. Any agency or company having communication line facilities available for use should forward details to:

Vice President Of Operations
Executive Computers Systems, Inc.
800 Enterprise Drive
Oak Brook, Ill. 60521

TRADE*QUOTES®

Computerworld Stock Trading Summary

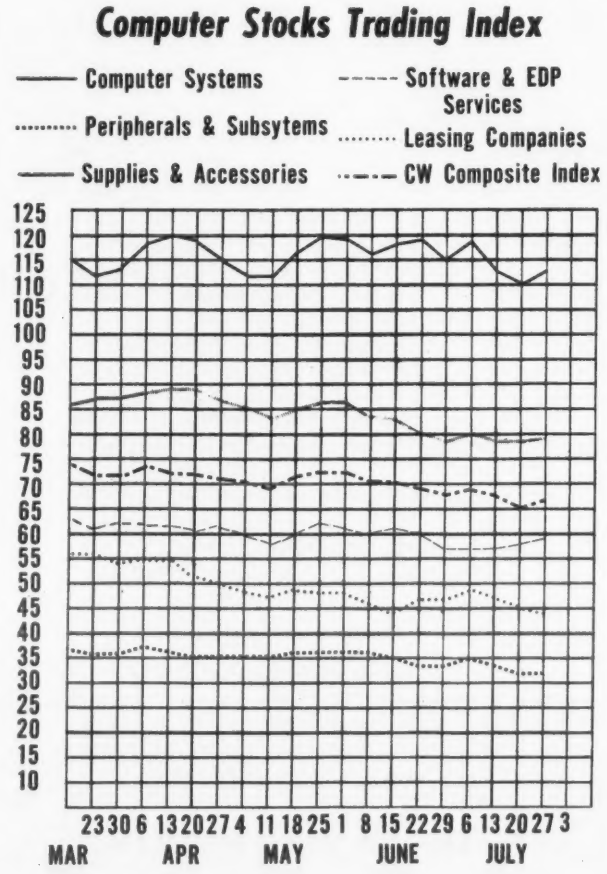
All statistics compiled, computed and formatted by TRADE★QUOTES, INC. Cambridge, Mass. 02139

CLOSING PRICES THURSDAY, JULY 27, 1972

EXCH		1972 RANGE (1)	CLOSE JUL 27 1972	WEEK NET CHNGE	WEEK PCT CHNGE
	SOFTWARE & EDP SERVICES				
O	ADVANCED COMP TECH	1- 2	2 3/8	+ 5/8	+35.7
A	APPLIED DATA RES.	4- 7	4 5/8	- 1/2	-9.7
O	APPLIED LOGIC	1- 4	2 7/8	+ 3/8	+15.0
N	AUTOMATIC DATA PROC	72- 99	98	+4 5/8	+4.9
O	BRANDON APPLIED SYST	1- 2	1 1/4	0	0.0
O	COMPUTER DIMENSIONS	8- 14	8	- 1/4	-3.0
O	COMPUTER DYNAMICS	1- 4	1 1/4	0	0.0
O	COMPUTER NETWORK	4- 7	5 1/4	+ 1/4	+5.0
N	COMPUTER SCIENCES	6- 10	6 7/8	+ 7/8	+14.5
O	COMPUTER TECHNOLOGY	6- 8	5 1/2	0	0.0
O	COMPUTER USAGE	9- 14	9 3/4	0	0.0
O	COMP AUTOMOT REPORTS	5- 9	5 1/4	+1	+23.5
N	COMPUTING & SOFTWARE	15- 28	14 3/4	-1 1/2	-9.2
O	COMRESS	1- 3	1 3/4	+ 1/4	+16.6
O	COMSHARE	5- 10	6 3/8	- 1/8	-1.9
O	DATATAB	5- 9	5 1/2	0	0.0
O	EDP RESOURCES	3- 8	3 3/4	+ 7/8	+30.4
A	ELECT COMP PROG	2- 5	2 3/8	- 1/4	-9.5
N	ELECTRONIC DATA SYS.	43- 65	53 1/8	+ 1/2	+0.9
O	INFORMATICS	7- 11	6 7/8	0	0.0
O	I.O.A. DATA CORP	1- 3	2 1/2	0	0.0
A	ITEL	8- 12	7 3/4	0	0.0
O	KEANE ASSOCIATES	4- 7	4 1/4	- 1/2	-10.5
O	KEYDATA CORP	7- 13	12 3/4	+ 1/2	+4.0
O	LOGICON	4- 9	6 7/8	- 1/8	-1.7
A	MANAGEMENT DATA	6- 10	5 7/8	- 1/8	-2.0
O	NATIONAL CSS INC	8- 25	22 3/8	+3 1/2	+18.5
P	ON LINE SYSTEMS INC	8- 20	18 5/8	+ 1/8	+0.6
N	PLANNING RESEARCH	10- 17	9 7/8	- 1/8	-1.2
O	PROGRAMMING METHODS	20- 24	20 1/2	- 1/4	-1.2
O	PROGRAMMING & SYS	1- 2	1 7/8	- 1/8	-6.2
O	SCIENTIFIC COMPUTERS	2- 4	2 3/8	- 1/8	-5.0
O	SIMPLICITY COMPUTER	1- 5	3 1/8	0	0.0
O	TBS COMPUTER CENTERS	4- 6	4 3/4	0	0.0
O	TRACOR COMPUTING	2- 3	1 3/4	0	0.0
O	TYMSHARE INC	7- 10	7 3/4	- 1/8	-1.5
O	UNITED DATA CENTER	5- 8	6 1/2	0	0.0
N	UNIVERSITY COMPUTING	17- 26	17 3/8	- 3/8	-2.1
A	URS SYSTEMS	6- 10	7 3/4	- 1/4	-3.1
O	VORTEX CORP	2- 5	2 3/4	+ 1/4	+10.0
	PERIPHERALS & SUBSYSTEMS				
N	ADDRESSOGRAPH-MULT	34- 48	46 5/8	+2 1/8	+4.7
O	ADVANCED MEMORY SYS	12- 23	17	-1 3/8	-7.4
N	AMPEX CORP	7- 15	7	- 3/8	-5.0
O	ANDERSON JACOBSON	5- 8	5	+ 1/8	+2.5
O	ATLANTIC TECHNOLOGY	1- 11	2 3/4	- 1/8	-4.3
A	BOLT,BERANEK & NEW	5- 21	16 7/8	- 3/4	-4.2
N	BUNKER-RAMO	9- 14	11 1/4	- 1/2	-4.2
A	CALCOMP	17- 25	17 5/8	+ 1/4	+1.4
O	CENTRONICS DATA COMP	11- 53	47	+ 1/2	+1.0
O	COGNITRONICS	3- 5	3 3/4	0	0.0
O	COMPUTER COMMUN.	1- 7	1 3/4	- 5/8	-26.3
A	COMPUTER EQUIPMENT	3- 4	3 1/8	+ 1/8	+4.1
O	COMPUTER MACHINERY	7- 13	10	0	0.0
A	COMPUTEST	5- 9	5 1/8	+ 1/4	+5.1
A	DATA PRODUCTS CORP	4- 7	4 1/4	0	0.0
O	DATA RECOGNITION	2- 5	2 1/4	0	0.0
O	DATA TECHNOLOGY	3- 5	2 3/4	- 1/8	-4.3
O	DI/AN CONTROLS	0- 8	5 5/8	+ 1/4	+4.6
O	DIGITRONICS	2- 4	1 3/4	+ 1/4	+16.6
N	ELECTRONIC M & M	5- 8	5 1/4	+ 1/8	+2.4
O	FABRI-TEK	2- 5	3 1/8	0	0.0
O	GENERAL COMPUTER SYS	7- 16	11 1/2	- 1/4	-2.1
N	GENERAL ELECTRIC	59- 70	63	+ 3/8	+0.5
N	HAZELTINE CORP	9- 13	9 1/2	+ 1/4	+2.7
O	INFOREX INC	28- 47	34	-4	-10.5
O	INFORMATION DISPLAYS	2- 5	1 3/4	0	0.0
A	LUNDY ELECTRONICS	9- 14	11 1/8	+1 7/8	+20.2
O	MANAGEMENT ASSIST	1- 2	5/8	0	0.0
N	MEMOREX	23- 38	23 1/4	- 7/8	-3.6
A	MILGO ELECTRONICS	17- 44	36 3/4	- 1/8	-0.3
N	MOHAWK DATA SCI	17- 27	16 1/2	-1 5/8	-8.9
O	OPTICAL SCANNING	7- 16	9 1/2	-1	-9.5
O	PERTEC CORP	9- 17	9 1/2	+ 1/4	+2.7
O	PHOTON	7- 15	11 1/8	+ 1/4	+2.2
A	POTTER INSTRUMENT	13- 21	13	0	0.0
O	PRECISION INST.	7- 13	7 1/4	- 1/4	-3.3
O	RECOGNITION EQUIP	8- 15	8 3/4	- 3/8	-4.1
N	SANDERS ASSOCIATES	13- 21	14	+ 1/2	+3.7
O	SCAN DATA	7- 13	7 7/8	- 1/4	-3.0
O	STORAGE TECHNOLOGY	17- 39	34 1/4	+ 3/4	+2.2
O	SYCOR INC	7- 11	9	- 1/4	-2.7
O	TALLY CORP.	8- 15	10 5/8	- 3/8	-3.4
N	TEKTRONIX INC	34- 60	59 1/8	+2 1/8	+3.7
N	TELEX	7- 15	7 1/8	-1	-12.3
O	WILTEK INC	10- 26	18 1/2	-1	-5.1
	SUPPLIES & ACCESSORIES				
O	BALTIMORE BUS FORMS	6- 9	6 1/4	- 1/4	-3.8
A	BARRY WRIGHT	9- 13	12 1/8	+ 3/8	+3.1
A	DATA DOCUMENTS	17- 26	20	- 3/8	-1.8
O	DUPLEX PRODUCTS INC	8- 16	8	0	0.0
N	ENNIS BUS. FORMS	7- 10	8	+ 1/8	+1.5
O	GRAHAM MAGNETICS	15- 27	18	0	0.0
O	GRAPHIC CONTROLS	12- 15	14	+1	+7.6
N	3M COMPANY	76-158	82	+3 1/4	+4.1
O	MOORE BUS. FORMS	42- 55	53	+ 3/8	+0.7
N	NASHUA CORP	48- 56	54 3/4	+ 1/8	+0.2
O	REYNOLDS & REYNOLD	37- 77	40	+3	+8.1
O	STANDARD REGISTER	14- 20	15 3/4	- 1/2	-3.0
O	TAB PRODUCTS CO	14- 17	16	+ 3/4	+4.9
N	UARCO	23- 28	23 3/4	+1	+4.3
A	WABASH MAGNETICS	8- 11	8 5/8	+ 1/8	+1.4
N	WALLACE BUS FORMS	22- 26	22 3/4	- 3/4	-3.1
	COMPUTER SYSTEMS				
N	BURROUGHS CORP	147-207	199 3/8	+7 5/8	+3.9
N	COLLINS RADIO	14- 20	15 1/2	+1 5/8	+11.7
N	CONTROL DATA CORP	43- 78	69 3/4	+ 1/2	+0.7
O	DATA GENERAL CORP	56- 99	97	+2	+2.1
O	DIGITAL COMP CONTROL	10- 25	9	- 3/4	-7.6
N	DIGITAL EQUIPMENT	72- 97	83 3/8	+1 3/8	+1.6
N	ELECTRONIC ASSOC.	6- 13	9	- 3/8	-4.0
A	ELECTRONIC ENGINEER.	7- 14	7 3/4	+ 1/2	+6.8
N	FOXBORO	28- 41	29 1/4	+1	+3.5
O	GENERAL AUTOMATION	13- 29	26 1/2	0	0.0
O	GRI COMPUTER CORP	3- 5	3 3/4	- 1/2	-11.7
N	HEWLETT-PACKARD CO	46- 72	71	+2 1/8	+3.0
N	HONEYWELL INC	130-158	153 1/2	+3 1/4	+2.1
N	IBM	333-404	397	+6 1/4	+1.5
O	INTERDATA INC	8- 16	11 5/8	+ 7/8	+8.1
O	MICRODATA CORP	5- 10	9	+ 1/2	+5.8
N	NCR	29- 35	30 7/8	+ 1/8	+0.4
N	RAYTHEON CO	35- 47	34 5/8	- 3/8	-1.0
N	SPERRY RAND	30- 45	43 7/8	+3 1/4	+8.0
A	SYSTEMS ENG. LABS	10- 16	10 1/2	- 1/8	-1.1
N	VARIAN ASSOCIATES	14- 18	17 3/8	+2 3/8	+15.8
N	VICTOR COMPTOMETER	15- 24	19	+ 5/8	+3.4
N	WANG LABS.	35- 61	38 1/2	-2 1/2	-6.0
N	XEROX CORP	121-159	156 7/8	+5 5/8	+3.7
	LEASING COMPANIES				
A	BOOTHE COMPUTER	7- 18	6 7/8	0	0.0
O	BRESNAHAN COMP.	2- 3	2	0	0.0
O	COMDISCO INC	3- 18	15 1/4	- 1/4	-1.6
O	COMPUTER EXCHANGE	1- 3	1 3/8	- 1/4	-15.3
A	COMPUTER INVSTRS GRP	8- 14	10 1/2	+ 1/2	+5.0
N	DPF INC	5- 13	5 5/8	+ 1/4	+4.6
M	DATRONIC RENTAL	3- 4	2 3/4	0	0.0
A	DCL INC	5- 10	5	- 3/4	-13.0
A	DEARBORN-STORM	17- 26	16 7/8	-1	-5.5
A	DPA, INC.	5- 8	5 3/4	- 1/8	-2.1
A	GRANITE MGT	7- 11	7	0	0.0
A	GREYHOUND COMPUTER	6- 11	6 1/2	- 1/8	-1.8
N	LEASCO CORP	17- 24	17 1/4	-1 7/8	-9.8
O	LEASPAC CORP	9- 15	9 1/2	0	0.0
O	LECTRO MGT INC	2- 4	1 1/8	- 1/8	-10.0
O	NCC INDUSTRIES	7- 11	6 5/8	- 1/4	-3.6
A	ROCKWOOD COMPUTER	3- 7	3 1/8	+ 1/8	+4.1
O	SYSTEMS CAPITAL	3- 20	17 5/8	+ 1/8	+0.7
N	U.S. LEASING	19- 33	30 1/8	+1 5/8	+5.7

EXCH: N=NEW YORK EXCHANGE; A=AMERICAN EXCHANGE
L=NATIONAL EXCHANGE; O=OVER-THE-COUNTER
P=PHIL-BALT-WASH
O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

Computer Stocks Trading Index



Earnings Reports

ADVANCED SYSTEMS
Year Ended March 31

	1972	1971
Shr Ernd	$.43	a$.47
Revenue	3,296,000	2,786,000
Earnings	b406,000	437,000
3 Mo Shr	.08	a.09
Revenue	825,000	c638,000
Earnings	81,000	c84,000

a-Reflects 50% stock dividend effective May 14, 1971. b-Includes loss from discontinued operations. c-Restated for consistent current accounting practices.

ALANTHUS
Nine Months Ended May 31

	1972	a1971
Shr Ernd	$1.02	.....
Revenue	2,410,763	.....
Spec Cred	98,268	.....
Earnings	583,139	.....

a-No comparable figures were provided due to a change in the nature of the company's business. On a fully diluted basis, per share earnings were 76 cents.

COMPERIPHERALS
Six Months Ended March 31

	1972	1971
Shr Ernd	$.16	$(.03)
Revenue	3,006,000	2,482,000
Earnings	115,000	(20,000)

DATAMETRICS
Six Months Ended April 30

	1972	1971
Shr Ernd	$.21	$.01
Revenue	556,500	384,700
Earnings	123,600	8,800

TIME BROKERS
Six Months Ended April 30

	1972	1971
Shr Ernd	$.10	.....
Revenue	894,833	$734,054
Tax Cred	16,191	.....
Earnings	47,273	(8,139)

MICRODATA
Three Months Ended May 31

	1972	1971
Shr Ernd	$.14	.....
Revenue	1,638,778	$522,449
Earnings	179,397	(235,001)
9 Mo Shr	.34	.....
Revenue	4,290,938	1,469,117
Earnings	432,921	(543,057)

AMPEX
Year Ended April 29

	1972 (000)	1971 (000)
Revenue	$283,924	$290,862
Loss	89,660	12,005

ON-LINE SYSTEMS
Year Ended April 30

	1972	1971
Shr Ernd	$.48	$.60
Revenue	3,524,998	2,465,754
Tax Cred	.....	122,000
Earnings	231,671	269,660
3 Mo Shr	.29	.16
Revenue	1,149,168	681,629
Tax Cred	.....	23,000
Earnings	141,966	75,222

ANDERSON JACOBSON
Year Ended March 31

	1972	1971
Shr Ernd	$.05	.....
Revenue	4,180,444	$2,354,961
Earnings	123,213	(108,554)

BURROUGHS
Three Months Ended June 30

	1972	1971
Shr Ernd	$1.09	$.92
Revenue	252,030,000	225,786,000
Earnings	20,307,000	16,894,000
6 Mo Shr	1.75	1.52
Revenue	472,632,000	433,897,000
Earnings	32,467,000	27,871,000

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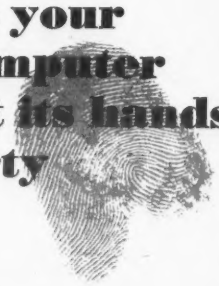

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